Middlebury Mod Lib

AMERICAN

RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, *Editor.*

ASSISTANT EDITORS:

JAMES T. HODGE, *For Mining and Metallurgy.*
CHARLES T. JAMES, *For Manufactures and the Mechanic Arts.*
M. BUTT HEWSON, *For Civil Engineering.*

SATURDAY, MAY 18, 1850.

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ESTABLISHED IN 1831.

NEW-YORK:

PUBLISHED WEEKLY, BY

JOHN H. SCHULTZ & CO.

Room 12, Third Floor,

No. 136 Nassau Street.

FARMERS! ATTENTION!!
John Mayher & Co's
NEW AGRICULTURAL WAREHOUSE AND SEED STORE,
197 WATER STREET, NEW YORK.

Where they have for Sale, the largest and most complete assortment of Farming Implements, ever offered for sale in this city—all of which they will sell 10 per cent. Cheaper than the same kind of Goods can be bought at any other house in the city. Our Goods are all Warranted to give satisfaction.

FARMERS wanting to purchase, will please call and examine our *Stock* before buying elsewhere.

Among our assortment may be found the Celebrated Highest Premium Eagle Ploughs! together with all the most approved Ploughs now in use.

Also,—Horse Powers, Threshing Machines, Fan Mills, Corn Shellers, Straw Cutters, Corn Mills, Seed Sowers, Churns, Ox Yokes, Ox Scrapers, Hay Rakes, Horse Rakes, Patent Chain Pump (that never freezes nor rusts), and other Pumps; in fact we have everything for Farming Purposes—together with Guano, Bone Dust and other Fertilizers.

JOHN MAYHER & CO.,
197 Water st., N. Y.

February 9, 1850.

N.B.—J. M. & Co. also continue their Old Stand, at 195 Front street, near Fulton Market.

STABILITY—SECURITY—PERPETUITY.

Mutual Life Insurance Co. of New York.
No. 35 WALL STREET.

A MILLION OF DOLLARS

Securely invested in Bonds and Mortgages on real estate in this city and Brooklyn, and stocks of the State and City of New York and United States Government.

This fund is rapidly increasing, by a widely extended and prosperous business.

The company declared a dividend of profits of fifty-two per cent. on all existing policies on the 31st of January, 1848.

All the Profits are Divided Among the Insured.

The premiums are payable in Cash annually, semi-annually, or quarterly, interest being added on the deferred payments.

The cash principle adopted by this company secures to the parties for whose benefit the insurances are effected, the whole of the advantages, without subjecting them to the heavy drawback of accumulated premium notes.

Persons may effect insurance on their own lives and the lives of others.

A married woman can insure the life of her husband, the benefits of which are secured by law for the exclusive use of herself or children.

Clergymen and all others dependent upon salaries or their daily earnings are specially invited to avail themselves of a resource whereby their surviving families may be secured from the evils of penury.

Pamphlets explanatory of the principles of Mutual Life Insurance, and illustrating its advantages, with forms of application, may be obtained at the office of the company, 35 Wall street, or of any of its agents.

TRUSTEES.

Jos. B. Collins,	David C. Colden,
Wm. J. Hyslop.	Alfred Edwards,
R. H. McCurdy,	Wm. Betts,
Fred. S. Winston,	Joseph Blunt,
C. W. Faber,	Isaac G. Pearson,
John P. Yelverton,	Henry Wells,
Theo. Sedgwick,	Wm. Moore,
Stacy B. Collins,	Zebedee Cook,
John H. Swift,	Jona. Miller,
John Wadsworth,	David A. Comstock,
S. M. Cornell,	Robert Schuyler,
Gouv. M. Wilkins,	James Chambers,
John V. L. Pruyn,	Joseph Tuckerman,
Fred. Whittlesey,	Moses H. Grinnell,
Charles Ely,	Wm. J. Banker,
John C. Cruger,	Eugene Dutilh,
Walter Joy,	Francis S. Lathrop,
Alfred Pell,	John C. Thatcher.

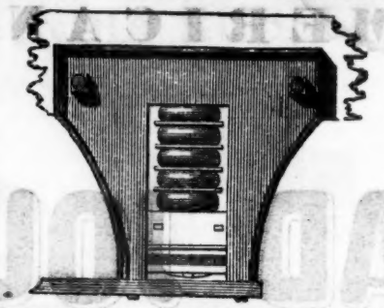
JOSEPH. B. COLLINS, President.
ISAAC ABBATT, Secretary. 3m9

Railroad Instruments.

THEODOLITES, TRANSIT COMPASSES, and Levels, with Fraunhoffers Munich Glasses, Surveyor's Compasses, Chains, Drawing Instruments, Barometers, etc., all of the best quality and workmanship, for sale at unusually low prices, by

E. & G. W. BLUNT,
No. 159 Water St., cor. Burling Slip,
New York, May 19, 1849.

FULLER'S PATENT INDIA RUBBER SPRING.



THESE SPRINGS ARE THE CHEAPEST, the lightest and most durable of any yet known. They are easily applied to new or old cars, and there is small possibility of any accident occurring to them.

Other parties through Mr. Ray set up claims to an India Rubber Spring which, though the same in principle, is very inferior in its working and durability.—Actions are in progress for an Infringement on Fuller's Patent against parties using that Spring.

The superiority of Fuller's Spring over that claimed by Mr. Ray is fully established and has frequently been testified to. The following are from gentlemen who have had much experience with both Springs.

—

"It will afford me pleasure to recommend your springs to the companies in this region, in preference to Ray's which I am confident are inferior in mechanical arrangement to yours." JOHN M'RAE,
Engineer S. Carolina R. R., Charleston.

—

"I do not hesitate to allow you to say that I concur in Mr. M'Rae's opinion that Ray's springs are inferior in mechanical arrangement to Fuller's. I repeatedly expressed that opinion long before Mr. M'Rae had seen your springs (as I believe) and entertain it still." WM. PARKER,
Gen'l Supt. of Baltimore and Ohio R. R.

—

Office of Sup't Norwich & Worcester R.R Co.
December 26, 1849.

"I most fully concur in the opinion of Jno. McRae, Engineer of S. Carolina Railroad, that 'Rays Springs are inferior to Fuller's Springs;' and shall with pleasure recommend them to all Railroad Companies for adoption. I have used both springs on this road and have no hesitation in saying that I should in all cases prefer Fuller's Spring."

SAM'L H. P. LEE, JR.,
Sup't and Engineer.

—

Office B. & P. R. R. Co.,
Boston, 20th December, 1849.

"This company have cars fitted up with both Ray's and Fuller's 'Metallic India Rubber Springs,' and I do not hesitate to say that Fuller's arrangement is *very much superior* to Ray's.

W. RAYMOND LEE, Supt.

—

The following result has been obtain d by experi ment upon one railroad.

A set of Trucks fitted with Steel Springs cost	$190·77	and weigh	2355 lbs.
The same with Fuller's Springs, . . .	131·71	"	1911 lbs.
Difference, . . .	$59·06	"	444 lbs.

Not only is there an advantage in the cost, but owing to the great reduction in weight, the car can be made lighter throughout, and so an enormous saving in weight may be effected in a Train.

G. M. KNEVITT, 38 Broadway, N. Y.,
General Agent for the U. S.

The Springs can also be had of
JAMES LEE & CO., 18 India Wharf, Boston, &
JAS. THORNLEY, 110 Chestnut St., Philad.
January 2, 1850.

American Cast Steel.

THE ADIRONDAC STEEL MANUFACTURING CO. is now producing, from American iron, at their works at Jersey City, N.J., Cast Steel of extraordinary quality, and is prepared to supply orders for the same at prices below that of the imported article of like quality. Consumers will find it to their interest to give this a trial. Orders for all sizes of hammered cast steel, directed as above, will meet with prompt attention.
May 26, 1849.

NOTICE TO
Superintendents of Railroads.

TYLER'S PATENT SAFETY SWITCH.—The undersigned would respectfully call their attention to his Patent Safety Switch, which from long trial and late severe tests has proved itself perfectly reliable for the purpose for which it was intended. It is designed to prevent the train from running off when the switch is set to the wrong track by design or accident. The single rail or gate switch is established as the best and safest switch for the ordinary purpose of shifting cars from one track to another, but it is liable to the serious evil of having one track open or broken when connected with the other. My improvement entirely removes this evil, and while it accomplishes this important office, leaves the switch in its original simplicity and perfection of a plain unbroken rail, connecting one track with the other ready for use.

The following decision of the Commissioner of Patents is respectfully submitted to Railroad Engineers, Superintendents, and all others interested in the subject. P. B. TYLER.

(COPY.)

UNITED STATES PATENT OFFICE,
Washington City, D.C., April 28th, 1846.

SIR: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3d Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision. The testimony in the case is now open to the inspection of those concerned.

Yours respectfully, EDMUND BURKE,
Commissioner of Patents.

To Philos B. Tyler.

Any further information may be obtained by addressing P. B. TYLER, Springfield, Mass., or JOHN PENDLETON, Agent, 149 Hudson St., New York.

PHILADELPHIA CAR MANUFACTORY,

CORNER SCHUYLKILL 2D AND HAMILTON STS.,
SPRING GARDEN, PHILADELPHIA CO., PA.

Kimball & Gorton,

Having recently constructed the above works, are prepared to construct at short notice all kinds of

RAILROAD CARS, Viz:

Passenger Cars of all classes—Open and Covered Freight and Express Cars—Coal Cars—Hand Cars & Trucks of all descriptions.

They are also prepared to furnish Chilled Wheels of any pattern. Car Wheels & Axles fitted and furnished. Snow Ploughs and Tenders made to order. Steel and other Springs always on hand.

All orders will be filled at short notice, and upon as good terms as at any other establishment in the country.

Omnibuses from the Exchange run within one square of the manufactory every 10 minutes during the day.

Philadelphia, June 16, 1849. 1y25

C. W. Bentley & Co,

IRON Founders, Portable Steam Engine Builders and Boiler Makers, Corner Front and Plowman Sts., near Baltimore St. Bridge,

BALTIMORE, MARYLAND.

Their Engines are simple in their construction, compact and durable; they require no brick work in setting them, and occupying but a small space (a six horse power engine and boiler, standing on a cast iron plate of three by six feet,)

They also manufacture Major W. P. Williamson's new oscillating Engine; a superior article, combining cheapness and simplicity (one of which may be seen in operation at their shop.) Both of these engines are adapted to any purpose where power is required, and may be made of any capacity; and for economy in use of fuel are unsurpassed.

All kinds of machinery made to order. Steam Generators, Force Pumps, Wrought Iron Pipes and Fillings for Steam, Water, Gas, etc., constantly on hand,

Baltimore, June 6, 1849.

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists, Philadelphia.

Jan. 20, 1849.

Coal.

CUMBERLAND SEMI-BITUMINOUS COAL superior quality for Locomotives, for sale by

H. B. TEBBETTS,
No. 40 Wall St., New York.
May 12, 1849. 1m19

IRON BRIDGES, BRIDGE & ROOF BOLTS, etc. STARKS & PRUYN, of Albany, New York, having at great expense establishe. a manufactory with every facility of Machinery for Manufacturing Iron Bridges, Bridge and Roof Bolts, together with all kinds of the larger sizes of Screw Bolts, Iron Railings, Steam Boilers, and every description of Wrought Iron Work, are prepared to furnish to order, on the shortest notice, any of the above branches, of the very best of American Refined Iron, and at the lowest rates.

During the past year, S. & P. have furnished several Iron Bridges for the Erie Canal, Albany Basin, etc. —and a large amount of Railroad Bridge Bolts, all of which have given the most perfect satisfaction.

They are permitted to refer to the following gentlemen:

Charles Cook, Nelson J. Beach, Jacob Hinds,	Canal Commissioners of the State of New York.
Willard Smith, Esq.,	Engineer of the Bridges for the Albany Basin.
Messrs. Stone & Harris, Mr. Wm. Howe,	Railroad Bridge Builders, Springfield, Mass.
Mr. S. Whipple,	Engineer & Bridge Builder, Utica, N. Y.

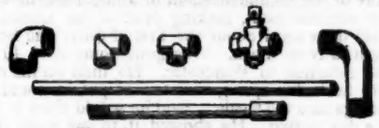
January 1, 1849.

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ¼ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T's, L's, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by

MORRIS, TASKER & MORRIS.

Warehouse S. E. Corner of Third & Walnut Streets,

PHILADELPHIA.

To Railroad Companies, etc.

The undersigned has at last succeeded in constructing and securing by letters patent, a Spring Pad-lock which is secure, and cannot be knocked open with a stick, like other spring locks, and therefore particularly useful for locking Cars, and Swiiches, etc.

Companies that are in want of a good Pad-lock, can have open samples sent them that they may examine and judge for themselves, by sending their address to

C. LIEBRICH,
46 South 8th St., Philadelphia.

November 3, 1849. 6m*

Mattewan Machine Works.

THE Mattewan Company have added to their Machine Works an extensive LOCOMOTIVE ENGINE department, and are prepared to execute orders for *Locomotive Engines* of every size and pattern–also *Tenders, Wheels, Axles*, and other railroad machinery, to which they ask the attention of those who wish such articles, before they purchase elsewhere.

STATIONARY ENGINES, BOILERS, ETC., Of any required size or pattern, arranged for driving *Cotton, Woollen, or other Mills*, can be had on favorable terms, and at short notice.

COTTON AND WOOLLEN MACHINERY, Of every description, embodying all the modern improvements, second in quality to none in this or any other country, made to order.

MILL GEARING,

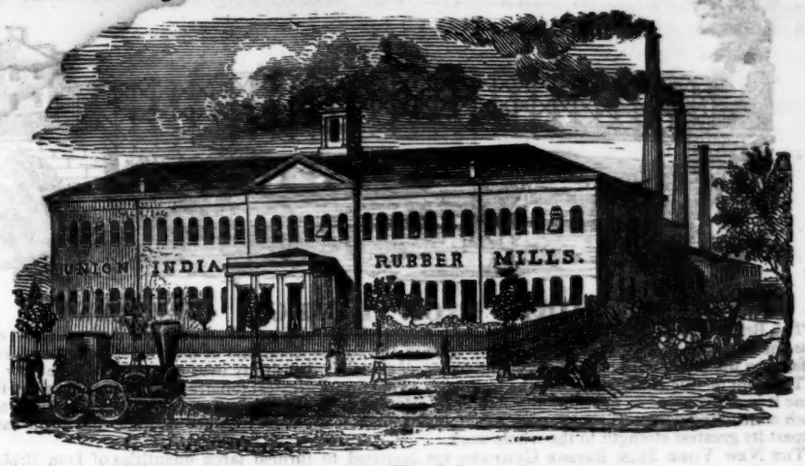
Of every description, may be had at short notice, as this company has probably the most extensive assortment of patterns in this line, in any section of the country, and are constantly adding to them.

TOOLS.

Turning Lathes, Slabbing, Plaining, Cutting and *Drilling Machines*, of the most approved patterns, together with all other tools required in machine shops, may be had at the Mattewan Company's Shops, Fishkill Landing, or at 66 Beaver street, New York.

WM. B. LEONARD, *Agent.*

☞ HEAD QUARTERS FOR RUBBER GOODS. ☜



The Union India Rubber Company,

MANUFACTURERS AND DEALERS IN EVERY VARIETY OF

GOODYEAR'S PATENT METALLIC RUBBER FABRICS,

Which they offer on the most liberal terms at their Warehouse,

NO. 19 NASSAU STREET, NEW YORK.

Articles which this Company has the exclusive right to make comprise in part

Beds,	Overcoats,	Life Preservers,	Mail Bags,	Camp Blankets,
Pillows,	Leggins,	Boat Floats,	Breast Pumps,	Travelling Bags,
Cushions,	Syringes,	Souwesters,	Saddle Bags,	Wading Boots,
Caps,	Canteens,	Gun Cases,	Clothing of all kinds,	Horse Covers,
Tents,	Buoys,	Portable Boats,	Carriage Cloth, assor.	Piano Forte Covers,
Bottles,	Maps,	Horse Fenders,	Hospital Sheeting,	Railroad Gum,
Tubs,	Sheet Gum,	Water Tanks,	Mattrass Covers,	Hose, all kinds,
Caps,	Tarpaulins,	Army Goods,	Bathing Caps,	Shower Baths,
Pants,	Life Jackets,	Navy Goods,	Baptismal Pants,	Chest Expanders.

Together with *all new applications of the Patent Rubber*, which with Boots and Shoes, Packing, Machine Belting, Suspenders, Gloves and Mittins, Tobacco Wallets, Balls, Baby Jumpers, Elastic Bands, etc., etc., will be sold to the Trade at Factory prices.

*** All orders for special articles to be manufactured, should be accopanied with full descriptions and drawings.

October 20, 1849.

RAILROAD India-rubber Springs.

IF any Railroad Company or other party desires it, the NEW ENGLAND CAR COMPANY will furnish India-rubber Car Springs made in the form of washers, with metalic plates interposed between the layers, or in any other form in which they can be made; in all cases guaranteeing the right to use the same against any and all other pretended rights or claims whatsoever.

F. M. Ray, 98 Broadway, New York.
E. CRANE, 99 State Street, Boston.
1849.

Brown's Old Established SCALE WARE HOUSE,

NO. 234 WATER ST., NEW YORK.

THE Subscriber, Practical Manufacturer of Scales of every description, respectfully asks the attention of Railroad Companies to his Improved Wrought Iron Railroad Track and Depot Scales which for strength, durability, accuracy, convenience in weighing, and beauty of workmanship, are not surpassed by any others in this country.

He is aware that this is rather a bold assertion for him to make, yet he can say with confidence that they have but to be tried to give them precedence over all others. J. L. BROWN.

☞ Bank Scales made to order, and all Scales of his make Warranted in every particular.

References given if required. 4tf

THE NEWCASTLE MANUFACTURING Co. continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack Screws, Wrought Iron Work and Brass and Iron Castings, of all kinds connected with Steamboats. Railroads, etc.; Mill Gearing of every description; Cast Wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.

ANDREW C. GRAY,
President of the Newcastle Manuf. Co.

DEAN, PACKARD & MILLS,

MANUFACTURERS OF ALL KINDS OF

RAILROAD CARS,

SUCH AS

PASSENGER, FREIGHT AND CRANK CARS,

— ALSO —

SNOW PLOUGHS AND ENGINE TENDERS OF VARIOUS KINDS.

CAR WHEELS and AXLES fitted and furnished at short notice; also, STEEL SPRINGS of various kinds; and

SHAFTING FOR FACTORIES.

☞ *The above may be had at order at our Car Factory,*

REUEL DEAN,
ELIJAH PACKARD,
ISAAC MILLS,
} SPRINGFIELD, MASS.

1y48

Iron Safes.

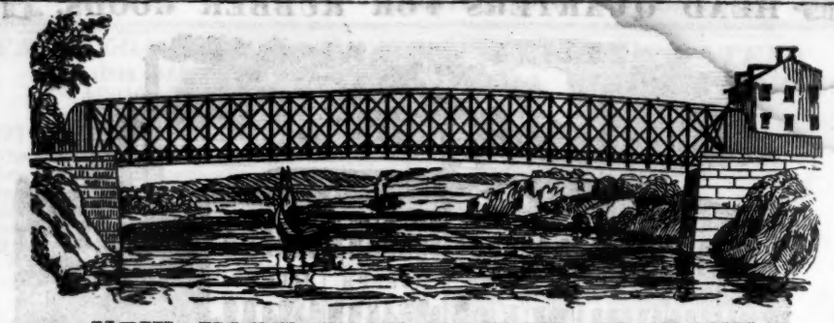
FIRE and Thief-proof Iron Safes, for Merchants, Banks and Jewelers use. The subscriber manufactures and has constantly on hand, a large assortment of Iron Safes, of the most approved construction, which he offers at much lower rates than any other manufacturer. These Safes are made of the strongest materials, in the best manner, and warranted entirely fire proof and free from dampness. Western merchants and the public generally are invited to call and examine them at the store of E. Corning & Co., sole agents, John Townsend, Esq., or at the manufactory.

Each safe furnished with a thief-detector lock, of the best construction.

Other makers' Safes repaired, and new Keys and Locks furnished at the shortest notice.

H. W. COVERT
cor. Steuben and Water sts. Albany

August 24, 1848.



NEW YORK IRON BRIDGE COMPANY.

The Bridges manufactured by this Company having been fully tested on different Railroads, by constant use for more than two years, and found to answer the full expectations of their most sanguine friends, are offered to the public with the utmost confidence as to their great utility over any other Bridge now known.

The plan of this Bridge is to use the iron so as to obtain its greatest longitudinal strength, and at the same time it is so arranged as to secure the combined principles of the *Arch, Suspension and Triangle*, all under such controlling power as causes each to act in the most perfect and secure manner, and at the same time impart its greatest strength to the whole work.

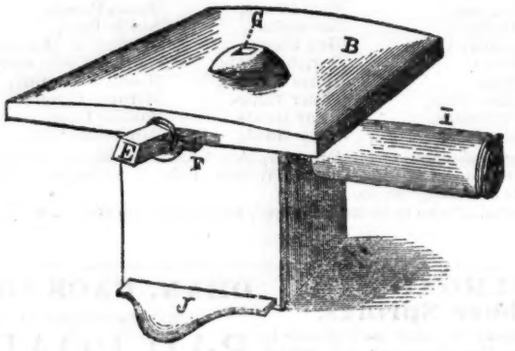
THE NEW YORK IRON BRIDGE COMPANY are prepared to furnish large quantities of Iron Bridging for Railroad or other purposes, at short notice, and at moderate prices.

Models, and pamphlets giving full descriptions of the above BRIDGE, with certificates based on actual trial from undoubted sources, will be found at the office of the Company, 39 Jauncey Court, Wall st., or of W. RIDER & BROTHERS, 19 *Nassau Street*, where terms of contract will be made known, and where orders are solicited.

M. M. WHITE,
Agent for the Company.

August 29, 1849.

E. Harris' Patent Rotary Blacksmith Tuyere.



LETTERS Patent were issued January 9, 1849, to E. HARRIS, of Springfield, for an Improved Rotary Blacksmith Tuyere. Since that time there have been some hundreds put in operation, giving satisfaction and full proof of superiority over all others.

This Tuyere is so arranged that by one movement it can be changed from the largest work to the smallest; at the same time the fire is changed in proportion, thereby making a great saving in coal. Words cannot convey the full merits of this Tuyere; nor is it deemed necessary to speak in disparagement of other Tuyeres, as every smith is capable of judging for himself, and will give merit where merit is due.

I will simply say that there has not been a single instance where I have had my Tuyere put in use but it has given full satisfaction, and is recommended by all who have used them, as being superior to any other ever introduced. I would invite all to give them a trial; and the names of those using them being given, I hope it may induce others to try them. they recommend themselves.

Western Railroad Shop,	Springfield,	Mass.
" "	Pittsfield,	"
Connecticut val."	Springfield	"
" "	N. Hampton	"
Hartford "	Hartford,	Conn.
New Haven "	New Haven	"
Norwich and Worcester,	Norwich	"
N. York and N. Haven,	New Haven	"
Saratoga and Whitehall,	Saratoga,	N. Y.
Vermont Central,		
Hudson and Berkshire,	Hudson,	
L. Kingsley,	Canton,	Mass.
Hadley Falls Co.	Ireland, W. Springfield,	Mass.
Sidney Patch,	Boston,	"
Ames Manuf. Cor.,	Chickopee,	"
American Machine w'ks,	Springfield	"
Dean, Packard & Mills	"	"
G. Frank Bradley,	N. Haven,	Conn.
Andrew Baird,	"	"
Collis & Lawrence	"	"
Slate & Brown,	Windsor Locks,	
Gage,	Nashua,	N. H.
Machine shop,	Manchester,	"
Louis F. Lanney,	Baltimore,	Md.
J. H. Baerdid,	179 Chambers st.	N. Y.
J. Fanning	Rochester,	"
G. W. Hunt	41 Gold st.	"
Chamberlain & Waldo,		"
P. S. Burges, carriage maker,		"
Samuel Miller,		"
J. Leggett,	Steverson falls,	"
J. E. Harris,	Hillsdale,	"
John L. Graham,	Albany,	"
David Dalsell,	South Egremont,	Mass.
Roys & Wilcock,	Berlin,	Conn.

Agents for the sale of Tuyeres:
B. B. Stevens in New York and Connecticut.
A. J. VanAllen has the Agency for the Western and Southern States, and is now travelling through those States. Any communication addressed to the patentee will receive prompt attention.

E. HARRIS, Patentee,
Springfield, Mass.

November 23, 1849.

Railroad Lanterns.

COPPER and Iron Lanterns for Railroad Engines, fitted with heavy silver plated Parabolic Reflectors of the most approved construction, and Solar Argand Lamps; manufactured by

HENRY N. HOOPER & CO.,
No. 24 Commercial St. Boston.

August, 16, 1849. 6m33

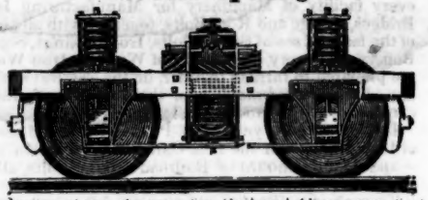
Gas Fixtures.

FIXTURES for Burning Gas for Lighting Public Buildings, Private Dwellings, Stores and Factories, manufactured by the subscriber in great variety. Orders by Mail, or left at the Factory on Causeway street, will be promptly attended to.

HENRY N. HOOPER & CO.

Boston, March 23, 1850. 6m13

F. M. Ray's Patent India-rubber Car Springs.



India-rubber Springs for Railroad Cars were first introduced into use, about two years since, by the inventor. The New England Car Company, now possesses the exclusive right to use, and apply them for this purpose in the United States. It is the only concern that has tested their value by actual experiment, and in all arguments in favor of them, drawn from experience of their use, are in those cases where they have been furnished by this company. It has furnished every spring in use upon the Boston and Worcester road, and, in fact, it has furnished all the springs ever used in this country, with one or two exceptions, where they have been furnished in violation of the rights of this company; and those using them have been legally proceeded against for their use, *as will invariably be done in every case of such violation.*

The Spring formed by alternate layers of India-rubber discs and metal plates, which Mr. Fuller claims to be his invention, was invented by Mr. Ray in 1844.—In proof of which we give the deposition of Osgood Bradley, of the firm of Bradley & Rice, of Worcester, Mass., car manufacturers, and men of the highest respectability. In this deposition, in relation to the right of parties to use these springs, he says:

"I have known Mr. Ray since 1835. In the last of May or the commencement of June, 1844, he was at my establishment, making draft of car trucks. He staid there until about the first of July, and left and went to New York. Was gone some 8 or 10 days, and returned to Worcester. He then on his retnrn said he had a spring that would put iron and steel springs into the shade. Said he would show it to me in a day or two. He showed it to me some two or three days afterwards. It was a block of wood with a hole in it. In the hole he had three pieces of India-rubber, with iron washers between them, such as are used under the nuts of cars. Those were put on to a spindle running through them, which worked in the hole. The model now exhibited is similar to the one shown him by Ray. After the model had been put into a vice, witness said that he might as well make a spring of putty. Ray then said that he meant to use a different kind of rubber, and referred to the use of *Goodyear's Metallic Rubber*, and that a good spring would grow out of it." There are many other depositions to the same effect.

The history of the invention of these springs, together with these depositions, proving the priority of the invention of Mr. Ray, will be furnished to all interested at their office in New York.

This company is not confined to any particular form in the manufacture of their springs. They have applied them in various ways, and they warrant all they sell.

The above cut represents precisely the manner in which the springs were applied to the cars on the Boston and Worcester road, of which Mr. Hale, President of this road speaks, and to which Mr. Knevitt refers in his advertisement. Mr. Hale immediately corrected his mistake in the article quoted by Mr. Knevitt, as will be seen by the following from his paper of June 8, 1848. He says:

INDIA-RUBBER SPRINGS FOR RAILROAD CARS.—"In our paper yesterday, we called attention to what promises to be a very useful invention, consisting of the application of a manufacture of India-rubber to the construction of springs for railroad cars. Our object was to aid in making known to the public, what appeared to us the valuable properties of the invention, as they had been exhibited on trial, on one of the passenger cars of the Boston and Worcester railroad. As to the origin of the invention we had no particular knowledge, but we had been informed that it was the same which had been introduced in England, and which had been subsequently patented in this country; and, we were led to suppose that the manufacturers who have so successfully applied this material, in the case to which we referred had become possessed of the right to use that patent. It will be seen from the following communication, addressed to us by a member of the company, by which the Worcester railroad was supplied with the article upon which our remarks were based, that we were in an error, and that the springs here introduced are an American invention, as well as an American manufacture. How far the English invention may differ from it we have had no opportunity of judging."

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HENRY V. POOR, Editor.

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American Railroad Journal.

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Saturday, May 18, 1850.

Lake Superior Copper Mines,

CAPE MINE.

I alluded in a late number of the Journal to the arrangements in progress for greater facilities of communication the coming season with the copper region of Lake Superior, and to the increased confidence thereby indicated in the permanent resources of the country. I since learn that besides the boats of Mr. McKnight, it is probable the fine passenger propeller Manhattan, or the steamer Sam Ward, will be put upon the route from Detroit to the copper region; the latter to run between Detroit and the Sault, and the former after being taken over the portage in the spring to complete the route to the upper country. To sustain these lines of boats the business of the country must be considerably increased beside the natural extension of that of each company now in operation. It is evident the owners of the boats are looking forward to new mining enterprises and to new permanent settlements. The results of the operations of the last year, the very favorable accounts brought by each monthly mail the present year, and the movements made in our cities in forming new associations, warrant these anticipations. I shall endeavor to keep up a nearly complete account of these new operations as well as of the progress of those of the old companies.

I have before stated that several entries were made the last fall of tracts on Keewenaw Point.—On these I understand new explorations are about to be commenced by several companies. They are in a district, which I examined with considerable care the last season, but which was only very generally described in my account of the workings of the Cliff, North American, North Western and North West companies. This district may be defined as the southern slope of the range of trap hills which extends along the Point nearly parallel with its northern shore and from three to four miles back from it. The accompanying map with its township and section lines, similar to those of the map of the Ontanagon district published in the number of the Journal for December 1, 1849, will convey a clear idea of the topography of the country, and of the relative positions of the different mines. It is compiled mostly from the government surveys.

All the mines on the Point, that have continued in successful operation, are on the southern slope of the central range of trap hills. These hills at their summits consist of layers of compact greenstone trap, which incline more steeply than their northern slopes towards the lake. Beneath the greenstone trap where the almost vertical southern face of the cliffs gives place to a more gentle inclination, a band of red conglomerate comes out to the surface and may be traced in this position from Eagle River almost to the extremity of the Point. West of Eagle River I have not recognised this belt of rock. At the Cliff mine, the compact trap is underlaid by a seam of quartz more like a vein itself, than a stratum of rock. But at the mines east of this the conglomerate is always found and in this particular position. In thickness it is not known to exceed thirty feet, and is sometimes much thinner. It is frequently cut through by the exploring shafts of the mining companies, as at the Winthrop, the North Western and North West mines. Below the conglomerate is the greyish trap rock, most commonly amygdaloidal, in which the veins are alone found productive. The thickness of this belt has never been ascertained.

The veins are nearly vertical and cross the ridges at right angles, cutting all these different belts of rock. On the summits they are seen inclosed in the compact trap, where this is uncovered; they are finely exposed to view in the steep southern cliffs and are traced through the conglomerate, pursuing their course far down into the amygdaloid below. Being true veins their limits will never be found. They consist of various veinstones, which I have before named—the principal one quarz. In the greenstone trap they contain only small particles of copper interspersed through the quartz; in the conglomerate they are no better—some copper still accompanies them, found scattered in thin sheets like foil among the pebbles, of which this rock is composed. It is only in the amygdaloid or greyish trap below, that the veins when opened to some depth produce the rich masses and stamp work. Along the narrow belt where this rock comes to the surface is therefore the only range in which to seek with confidence for productive veins.

One of the new tracts in this position purchased of the government the last fall, and on which mining explorations are soon to be commenced, is called the "*Cape Mine*," from its situation near the extremity of Point or Cape Keewenaw. This is now owned by the "Cape Mine Association," so called, of Philadelphia, for which I have prepared a report, of which the following is the substance.

This tract, which is the southwest quarter of section seven of town fifty eight north, range twenty eight west, is situated about two and a half miles in a straight line from the western extremity of Copper Harbor. Here on the east side of a great gap, through the ridge, in a position singularly like that of the North American vein now worked, is seen in the vertical face of the trap rock a great vein of quartz and chlorite, four to five feet thick—the veinstones arranged in alternating layers parallel with the walls of the vein, and interspersed (the quartz particularly) with small particles of native copper. In external appearance the vein is a remarkable one for its size, its fine exposure, its connection with the great gap through the ridge and with other signs of disturbance, which are noticed about all the productive veins—as numerous

fissures through the rocks around and little feeders or branches connected with the main vein. The veinstones themselves similar to those of the best veins of the country, are as rich in copper as any, I believe, found in the compact greenstone trap. Here only and in the conglomerate, which comes to the surface in the more gentle slope immediately beneath, have any mining explorations been made. These are very superficial, and would have determined nothing more than what is seen at the surface, even if they had been in the proper rock, which they are not. This lies a little farther down the hill, forming a terrace, which is very conveniently situated for mining operations, and for drainage to a moderate depth by an adit level.—This is of great consequence to take off the surface water, which in these rocks is nearly all that penetrates into the deeper workings. The greyish trap below much resemble that of the Northwest mine adjoining the productive portion of the *Stoutenburg* vein. So far as it is exposed, the vein seen a few rods above in the compact trap does not present itself to view on its range through this lower belt.—It may have been thrown to one side in passing through the conglomerate, as the Cliff vein is heaved by the layer of rock occupying the same position as this conglomerate; or it may be concealed beneath a cap of grey trap, as the magnetic iron ore veins of New Jersey and northern New York are frequently lost sight of and then recovered. The vein as seen in the trap above is of too decided a character to admit of its running out, or being in any way lost except by local displacement—a feature to which veins in all countries are subject, and which, though it sometimes involves considerable search, can in no wise be regarded as having any unfavorable influence upon their productiveness or permanence. In this instance, in case the vein is not detected in clearing off the surface, I should have little doubt of soon finding it by sinking a shaft in the rock nearly on its range, and then at the depth of twenty or thirty feet drifting east and west until it is cut. Or on further examination it may be found more expedient to sink a succession of small experimental shafts here and there across the line of its range. This may prove the more economical plan, the other is more certain. Either is not likely to involve an expense of more than a few hundred dollars before the vein is found.

The accompanying figure (1) is a vertical cross section on the plane of the vein, showing the outline of the ridge, the steep pitch of its southern face, and the gentler slope of its northern side. It represents also the relative position of the three belts of rock and the point, marked by the windlass, where mining operations may judiciously be commenced. Figure 2 is a front outline view of the Cliff, showing the position of the vein, and the gap through the ridge. The vein is designated by the upright blank lines in the Cliff on the east side of the gap.

Veins of the character of this admit of no previous estimates, as to their productiveness. One forms a judgement of them by comparison of the features they present, with those the best veins of the country displayed at a similar stage of their development. In this comparison, taking in all the circumstances of position, character of the veinstones in the compact trap, as also of this rock immediately adjoining the vein, the size of the vein and its metalliferous contents, I cannot but regard it as one of the most promising points yet unproved now known in the country; and in this opinion I am confirmed by that of several practical men who have explored this region and expressed to me their views.

Beside the promise of the vein itself the situation of the tract is peculiarly favorable for carrying on mining operations with economy. By reference to the accompanying map of the Point, it will be seen that the coast line following the indentations of Copper Harbor, approaches as near the trap range at this point as at any other. This is of the greatest importance in a region where roads are so expensive to make, and where a constant communication must be had with some convenient harbor. Of all those on the coast of Lake Superior, none, I believe, are preferred to Copper Harbor. It is the nearest to the foot of the lake of all the harbors connected with the copper mines, it is the most capacious, is already provided with a lighthouse at its entrance, and has the best dock and landing place, which is at the nearest point of the harbor to the Cape mine. Here too are convenient dwelling and store houses and a postoffice. To reach this point from the mine, a road passing through the gap near the vein would necessarily be somewhat longer to avoid the conglomerate hills, than the straight line of two and a half miles. It can probably be well made within four miles. On the other side of the Point the mine is almost equally near the shore of the lake on the fine Bay de Gris where vessels may safely lie protected from all northerly winds. No portion of the trap range can be much better situated for facilities of shipment of ores and receiving supplies than this.

The Little Montreal river which passes along south of the tract is here too deep a stream to be forded. Its course is interrupted by occasional water falls which may furnish power for stamp and saw mills. Along its banks is abundance of large white pine, which with the heavy growth of maple, birch, oak and hemlock, indicates a strong and fertile soil, such as almost everywhere accompanies the trap formation. Near its mouth are several steep pitches, first over conglomerate and below over ledges of trap rock. The lowest of them, which are directly above the shore of the lake, are estimated by the government surveyors to be 22 ft. in height. They are owned by the same association as the Cape mine itself; and in connection with this mine they may prove of no small consequence as a valuable site for mills for stamping the ores or for saw mills—especially should it be found that a shelter can be made for vessels against the southeast winds, which the form of the coast seems to render not unlikely.

—

We have received the following account of the organization of the Cape Mine Association:

At a meeting of the stockholders of the "Cape Mine Association," held in Philadelphia, Pa., at the office, No. 26 South Third street, (2d floor)—three fourths of the stock being represented—Jacob M. Thomas was called to the chair, and Fred. Fairthorne appointed secretary.

The report of Mr. Hodge was read and approved, and ordered to be published in the Railroad Journal.

Information was laid before the meeting that a charter has been obtained for this company: and that the mine lands situated on Point, or Cape Keewenaw, upon the southern slope of the main "trap range" have been bought of the U. S. government—and the "patents" were produced to the meeting.

Also that there is in the treasury of the Association $2,000 of working capital with which to prove the copper bearing "lode."

The following officers were unanimously elected:

MANAGERS.

William Coffin, of Philadelphia.
Geo. M. Flemming, "
Wm. Pettit, "
John C. Bullitt, "
Davie Samuel, "
D. D. Brockway, of Michigan.

SECRETARY.

Fred. Fairthorne.

TREASURER.

Wm. Pettit.

General business office, No. 26 South Third St., (2d floor) Philadelphia, Pa.

Adjourned, *sine die*.

JACOB M. THOMAS, Chairman.
FRED. FAIRTHORNE, Secretary.
Philadelphia, April 18, 1850.

German Railways--Their History, Extent, Cost, &c.

Germany, with its generally even surface and sandy soil, is perhaps as well adapted to the easy and cheap construction of railways as any country of the globe, and it seems to need them as much as any. It has few navigable rivers upon which to send the swift messengers of commerce and civilization, and it is fortunately, or unfortunately, divided into numerous sovereignties, the political and commercial relations of whose capitals require frequent and speedy communication between them. It possesses an intelligent, industrious population, whose convenience and whose interests equally demand facility of intercourse. It is not strange therefore that the attention of the German governments was early turned to the construction of railroads as the best means of subserving these ends.

Austria merits the honor of first introducing them by construction of the road from Budweis to Linz, a distance of about 70 American miles. Upon this road the trains have been drawn by horses, and it is probably the only one of any considerable length upon which this species of motive power is now in use. This road was opened in 1828, one year before locomotives were first employed for passenger trains upon the Birmingham and Manchester road. The short road from Nursenburg to Furth, in the Kingdom of Bavaria, was that upon which the first locomotive in Germany was used. It was opened a few years after that from Budweis to Linz, and is one of the most profitable in the country, paying from 13 to 15 per cent. while the others average not over 4 to 5 per cent.

The plan adopted in constructing her system of railways was to make and put in operation those portions of roads which presented fewest obstacles, and then concentrating forces upon those parts more difficult. This course gave her at one time a multiplicity of isolated lines, apparently without plan or system, but the completion of the remaining portions have now united them, presenting an extenstve and well arranged network of railway.

By far the larger part of these roads had been constructed by the different governments—Prussia alone of them all has refrained entirely from the undertaking. She has, however, aided their construction by guarantying interest to chartered companies, and has thus supplied herself with a greater extent of railway than any other of the German States possess. Her roads are superior in structure and management to those of the other States, and have been built at an average less cost per mile, a pretty good evidence that here, as in America, companies are better adapted to the construction of such enterprises than governments.

Austria, Bavaria and other States have construct-

ed nearly all the roads within their respective limits, and still keep them under their control. This latter fact alone is perhaps sufficient to account for the want of energy, mismanagement and want of speed in movement. Exceptions upon one or two of the Prussian lines, and those of Belgium, which have caught a little life from connection of the French roads, the trains move at a snail's pace, hardly averaging 10 miles the hour, with four or five times the men employed upon the American lines, twice, and often thrice the time is occupied in getting the trains ready. The employees upon all the roads have a sort of military costume, and in Austria the chief conductor is provided with a bugle, a few blasts from which gives the signal for departure, quite a musical and not unpleasant method.

The whole extent of roads in operation in Germany and dependencies at the commencement of this year was 1,140 German or 5,253 American miles. With few exceptions they have but one track, are laid upon transverse sleepers of oak or pine, have a rather light T rail, and are of the narrow guage. There are usually three classes of cars —the first and second are similar to those upon all European roads—having three or four compartments in each carriage, between which there is no communication, and in which are two benches running across the carriage, affording seats for eight persons. The seats of the 1st class are cushioned, and the backs well stuffed. The greatest inconvenience is, that as the two rows of seats face each other, one half the passengers must ride backwards. There are no means of warming the cars save that in those of the first class, boxes of hot sand are provided for one's feet. The second class of cars are more comfortable upon the German roads than upon those of any other European country, and the consequence is that nearly all the passengers here take that class. The rates of fare for the 2d class carriages here correspond nearly with the rates upon our roads. Those of the 1st class are of course a little higher, while those of the third are much lower. The difference between the rates for the 1st and 2d class here is much less than upon the French and English roads, and there is less difference between the style and comfort of the 1st and 2d classes of carriages—those of the second class being nearly equal to those of the 1st class.

A great many additional roads have been projected in Germany, and some few are in process of constructed. That portion of the line from Vienna to Trieste which is not completed (from Laibach to Trieste) is now in process of construction, and will be opened as soon as possible, say in one and a half or two years, if the government can get funds; which is by no means a sure case. The line from Prague to Dresden is nearly completed. It will be opened in about 4 months, when Mr. Andrews, the enterprising Englishman who first put steamers upon the Danube, and who has now six steamers upon the Elbe, expects to be obliged to quit the latter river altogether, as the road runs upon its banks.—I endeavored to encourage him with the idea that he would be able to compete with the road, and he will certainly make the attempt, with what success remains to be determined. The current of the Elbe here is rather rapid, and the navigation somewhat difficult; but the amount of pleasure travel is now great, and will constantly increase, owing to the surpassing beauty of the scenery through this "Saxon Switzerland" as it is called. The two portions of roads I have mentioned, with one or two more of less extent are the only ones that I see much probability of being completed for some time to come, owing to the unhappy state of political affairs.

The revolutions which broke out almost simultaneously in the different States, and which for a time drove sovereigns from their royal abodes, and some of them from their thrones, have, by the aid of treachery and Russian bayonets, been apparently quelled. The roar of cannon is no longer heard —royalty has skulked from the castles in which it had taken refuge, and returned to its accustomed haunts, more however like the traveller who expects to pass but a few days, than like the master of his house and people. Though there be peace, there is no quiet, no feeling of security. Almost one-half the people is armed against the other half.—Austria has with the new levies 750,000 men under arms; Prussia, 350,000; and the smaller States in proportion. The contests have for the present, however have been transferred from the battle field to the forum. Representatives of the people in almost every State are discussing the forms of constitutions they will accept from their respective sovereigns, and the Congress which was lately in session in this city is to reassemble at Erfert on the 20th of this month, to agree upon terms of general union and confederation. What the result of this will be, of course no one can foretell; but the wide difference which has thus far manifested itself between what the people demand on the one hand and what the governments seem willing to award on the other, together with the strong sectional feelings and jealousies that have been stirred up, will make any amicable arrangement seem almost a miracle. The present aspect of Germany is therefore far from promising, at the same time it is in one respect singularly anomolous and amusing.

The representatives of the people are contending with great earnestness and pertinacity, for this or that right, to be inserted in the new constitutions, while their old constitutions, with all the rights therein guarantied by them are entirely suspended, or superseded by martial law, which is now enforced in nearly every State. The civil authorities do not exist, or have no duties to perform. The sovereigns rule the people only as commanders of the military forces. The recent disturbances have been destructive to business and detrimental to industry, at the same time they have augmented enormously the burdens that will be a tax upon the profits of both. We must not be surprised therefore if Germany for the next 5 years does little for the progress of that mighty agency of the present century, the introduction of which into her borders has contributed more than all things else probably to produce the recent agitations with which she has been afflicted, or blessed. Steam has already *revolutionized* the country, and if the proper applications are contrived and persevered in, quite sure I am it will republicanize not only this country, but the whole world. It will prove the best antidote for despotism that has ever been discovered.

BERLIN, March 12, 1850.

—

In a former number I set the time required from Boston to Paris as we came at 11¼ days. From Paris we go to Tonnere in cars, thence to Dizon in diligence, thence to Chalon in cars, and thence to Lyons in steamer upon the Saone, the whole occupying two days. From Lyons we descend the Rhone, through varied and beautiful scenery to Avignon, and there take the railway again to Marseilles, which we do easily in two days more. One day by steamer takes us to Genoa, calling at Nice on the way. From Genoa we proceed to Novi over the lower Alps by diligence, and then take the railway to Turin, the capital of Sardinia, doing the whole in part of a day. From Turin to Milan occupies us another day in the diligence, and thence we go to Verona, still via diligence, whence we take the cars for Venice, doing this in another day. From Venice to Trieste in a beautiful steamer we make in 6 hours, and thence to Larbach by diligence, where we take cars for Vienna, and arrive in less than two days from Venice. From Vienna it is an easy day's ride to Prague, and thence to Dresden down the Elbe in another day. From Dresden 6 hours by railway brings us to Berlin, and from Berlin we go in 24 hours to Cologne, and from Cologne in another 24 hours we pass Aix la Chapelle, Brussels and arrive at Paris, making the whole tour from Boston to Vienna and back to Paris, passing through the principal capitals of Europe in less than 27 days. These data will enable a person to estimate pretty accurately the time necessary to visit, as he would like the places mentioned, and make such deviations from the principal route as would be desirable, at the same time they show how wonderfully the steam ship and the locomotive have facilitated travel, rendering it at the same time far less fatiguing.

The German roads have been built at a much lower cost than other European roads are, well nigh down to the average of our own, as will be seen by the subjoined table, showing the cost of some of the lines. The chief saving is in the price of labor, which averages little if any more than 15 cents the day. The workmen upon railways sometimes make 20 cents the day by taking jobs. The timber for cross sleepers and the land damages costs less here than in France and England. Upon the whole the American sees many more opportunities for suggesting improvements here, than for learning them and he cannot fail to be impressed even in passing over the best lines that the Germans are 8 or 10 years behind the times in the construction and management of railroads.

	No. of miles.	Expense. Total.	p. mile.
Budweis, Linz, Germunden	122	$1,207,873	$9,900
Berlin, Stettin	83	2,407,039	29,000
Berlin, Anhalt	92	3,185,319	33,886
Breslau, Fribourg, Sweidtnitz	41	1,329,658	32,430
Bonn, Cologne	18	617,659	34,314
Rhenan	47	6,393,715	136,036
Leipzig, Dresden	71	4,310,919	60,717
Madebourg, Leipzig	74	3,423,555	46,264
Madebourg, Halberstadt	36	1,073,951	29,832
Manheim, Bale	[illegible]	7,198,200	51,415
Munich, Augsburg	38	1,674,065	44,054
Nuremburg, Furth	3 7·10	85,366	23,072
Hanover, Brunswick	38	978,390	25,747
Altona, Kiel	66	1,434,222	21,730
Hamberg, Bergedorf	10	641,861	64,186

ON THE CONSTRUCTION OF SEWERS.

Continued from page 291.

Gratings.—It has been a practice with me to place our sewer gratings about fifty yards asunder; they are made slightly, dished in the middle, and with bars about ¾ in. apart, so as effectually to prevent stones and other solid substances getting into the sewer: the bars are also beveled on the under side, so as to prevent the dirt clogging to them.—They measure 16 in. by 13½ in., and are about 2 cwt each, and we connect them with the sewer with 9-in. pipes. The old gratings weighed about 5 cwt., and measured 30 in. by 24 in., with bars 1½ in. to 2 in. assunder. I often found them connected with the sewer by 9 in. drain pipes, of an area of 63 in., while the clear area or space between the bars was about 351 inches. The old traps also were of simular huge dimensions as to area.

I have recently introduced side gratings fitted into the curb stones, which are more efficient, and not so unsightly as the old gratings; these, I find, are recently introduced into Liverpool, and they have for many years been adopted in Birmingham and Paris.

In London, Liverpool, and other towns glazed pipes only are allowed to be used, and in the former places they are now entering into large contracts for supplies of them. Glass pipes are now being manufactured for the purposes of drainage and as water mains; from their straightness and extreme smoothness, they will discharge a greater amount of fluid than glazed pipes, but their high price, which is as follows, is rather an obstacle to their use:

1	inch....	7d. per foot.	2½	inch....	14d. per foot.
1¼	"	8d "	2½	"	16d. "
1½	"	9d "	2¾	"	18d. "
1¾	"	10d. "	3	"	20d. "
2	"	12d. "			

The ends of the pipes are now annealed, so they are not so liable to fracture as when first made, and the manufacturers have invented a collar and cement that is used for the purpose of joining them together, and which makes a perfectly water-tight joint.

As the best security against the passage of foul air from sewers and drains, all openings should be trapped, and the most effectual trap I consider yet invented for house drains is the syphon trap of glazed stone ware. I have recently introduced the patent valve trap, the pipe being composed of glazed stone ware, and the valve of galvanized iron, but I have discovered that it is not so effectual as the syphon trap, as you cannot ensure tightness at all times, but they effectually prevent vermin getting up the drains.

Street Cleansing.—The thorough cleansing of the streets of towns has a salutary effect on the health of the inhabitants. Our principal thoroughfares should be swept daily, and the inferior streets twice or thrice a week, and at the same time the streets are swept, the courts should be cleansed likewise. Our principal streets contain 22,202 superficial yards; second class streets, 19,061 yards; and the third class 32,545 yards; making a total of 73,808 yards, which will require the labor of 49 able-bodied men to cleanse daily, and if cleansed as above stated, 18 able bodied men. There are several methods recommended and adopted for cleansing streets, viz., by means of jets of water, (as adopted at Philadelphia), the patent sweeping machine and by hand labor.

Cost of cleaning by jets of water..	5½d. p. 1000 yd.
Patent machine.....	10½d. "
(Experiments at Salford).....	8¾d. "
Hand labor [able bodied].....	15d. "
Pauper hand labor.....	24d. "

The following is the result of experiments tried by Mr. Chadwick, member of the Board of Health in Pall-Mall, London, to ascertain the relative cost of the two systems of hand labor:

The price of sweeping Pall-Mall was by pauper labor.....	3s. 10d
The price of sweeping Pall-Mall was by free labor.....	2s. 6d.

The paupers were paid 3s. 10d. a-day, the free laborers 2s. 6d.

The system of pauper labor has had a fair and impartial trial on the turnpike roads throughout the kingdom; and if the opinions of such men as Telford and Macadam are worth anything, it has been justly condemned, and generally abandoned on the score of inefficiency and costliness.

Street Surfaces.—The best material for the surface of streets has been a subject of much controversy.

Macadam's system of making and repairing street surfaces with stones broken small, resting upon the subsoil, is erroneous in principle. Telford's, with a solid foundation of sand or other stones set or pitched by hand, and covered with a coating of durable granite, whin, or quartz rock, is much to be preferred; in fact I consider the roadway of streets formed with small broken stones totally inapplicable for towns, as being expensive, unhealthy for the inhabitants, and also as the means of adding very considerably to the labor of horses in draught.

The round or boulder stone pavement is also open to objection, as it allows the liquid filth to perforate through the large open fissures into the subsoil with which it becomes saturated, and in certain states of the weather, gives off offensive exhaltations; and as generally constructed, without a proper foundation, the stones being irregular in size, yield, in different proportions to the weight passing over them according to the superficial area of the bearing surface of the stones, which forms ruts and hollows, and disagreeable inequalities in the streets.

But a good pavement may be formed of the round pebbles, provided a foundation of concrete or other solid material is previously prepared, and the stones carefully sorted, so as to have them of one uniform size.

As the best and most economical mode of preparing the roadway of streets, I would recommend the square set pavement, composed of granite, whin, or other equally durable stone, in blocks carefully squared, 6 to 7 inches deep, 2½ to 3 inches thick, and not exceeding 1 foot in length, to be set in the streets in regular transverse courses, about 1½ inch assunder, so as to afford a good foothold for the horses, and the lower part of the cavity between the stones filled up with good sharp gravel, and the upper part mixed with a little asphalte, so as to prevent moisture from penetrating through.

The foundation I would have prepared with concrete 12 to 18 inches thick, according to the amount of the traffic of the street; it may be formed of gravel, broken stone, or burnt clay, as may be found the most economical, mixed with a proportion of hydraulic lime and sand, and this throws upon the prepared surface of the street from an altitude and afterwards shaped to the requisite curvature, and of one uniform thickness, will make a sound and durable bed for the sets.

The curvature of a street should form a segment of a circle, with a versed sine of not more than is required just to throw off the surface water. The great error in the form of our streets is the extreme roundness that is given to the cross section. I consider that a versed sine of four inches in a street 30 feet wide, ample.—*C.E. & A. Jour.*

REPORT OF THE COMMISSIONERS APPOINTED TO INQUIRE INTO THE APPLICATION OF IRON TO RAILWAY STRUCTURES.*

From the information supplied to us, it appears that the proportions and forms at present employed for iron structures, have been generally derived from numerous and careful experiments, made by subjecting bars of wrought or cast iron, of different forms, to the action of weights, and thence determining by theory and calculation such principles and rules as would enable these results to be extended and applied to such larger structures and loads as are required in practice. But the experiments were made by dead pressure, and therefore only apply therefore to the action of weights at rest. On the contrary, from the nature of the railway system, the structures employed therein are necessarily exposed to concussions, vibrations, torsions, and momentary pressures of enormous magnitude, produced by the rapid and repeated passage of heavy trains.

These disturbing causes, in smaller degree, have always occurred in structures connected with millwork or other mechanism. But the effects upon their stability have not been found greater than could be met by increasing the dimensions of the parts without especially inquiring into the exact principles upon which such increase should be made. Thus, we are informed that the dimensions of cast iron girders, intended for sustaining stationary loads, such as water-tanks and floors, are usually so proportioned that their breaking weight shall be three times as great as the load they are to carry, or in some cases four or five times as great. But when the girders are intended for railway bridges, and therefore subject to much concussion and vibration, greater strength is given to them by altering the above proportions, and making the breaking weight from six to ten times as great as the load, according to the practice of different engineers. On the other hand, some consider that one third of the breaking weight is as safe a load in the latter case as in the former.

As it soon appeared, in the course of our inquiry, that the effects of heavy bodies moving with great velocity upon structures had never been made the subject of direct scientific investigation and as it also appeared that, in the opinion of practical and scientific engineers, such an inquiry was highly desirable, our attention was early directed to the devising of some experiments for the purpose of elucidating this matter.

The questions to be examined may be arranged under two heads, viz:

1. Whether the substance of metal which has been exposed for a long period to percussions and vibrations undergoes any change in the arrangement of its particles, by which it becomes weakened?

2. What are the mechanical effects of percussions, and of the passage of heavy bodies in deflecting and fracturing the bars and beams upon which they are made to act?

A great difference of opinion exists among practical men with respect to the first of these questions. Many curious facts have been elicited by us in evidence, which show that pieces of wrought iron which have been exposed to vibration, such as the axles of railway carriages, the chains of cranes, etc., employed in raising heavy weights, frequently break after long use, and exhibit a peculiar crystalline fracture and loss of tenacity, which is considered by some engineers to be the result of a gradual change produced in the internal structure of the metal by the vibrations. In confirmation of this, various facts are adduced, as, for instance, that if a piece of good fibrous iron have the thread of a screw cut upon one end of it by the usual process of tapping, which is always accompanied by much vibratory action, and if the bar be then broken across, it will be found that the tapped part is a good deal more crystalline than the other portion of the bar. Others contend that this peculiar structure is the result of an original fault in the process of manufacture, and deny this effect of vibration altogether, whilst some allege that the crystalline structure can be imparted to fibrous iron in various ways, as by repeatedly heating a bar red hot, and plunging it into cold water, or by continually hammering it, when cold, for half an hour or more.

Mr. Brunel, however, thinks the various appearances of the fracture depend much upon the mode in which the iron is broken. The same piece of iron may be made to exhibit a fibrous fracture when broken by a slow heavy blow, and a crystalline fracture when broken by a sharp short blow. Temperature alone has also a decided effect upon the fracture; iron broken in a cold state shows a more crystalline fracture than the same iron warmed a little.

The same effects are by some supposed to be extended to cast iron.

We have endeavored to examine this question experimentally in various ways.

A bar of cast iron, 3 inches square, was placed on supports about 14 feet asunder. A heavy ball was suspended by a wire 18 feet long, from the roof, so as to touch the centre of the side of the bar. By drawing this ball out of the vertical position at right angles to the length of the bar, in the manner of a pendulum, to any required distance, and suddenly releasing it, it could be made to strike a horizontal blow upon the bar, the magnitude of which could be adjusted at pleasure, either by varying the size of the ball or the distance from which it was released. Various bars (some of smaller size than the above) were subjected by means of this apparatus to successions of blows, numbering in most cases as many as 4000, the magnitude of the blow in each set of experiments being made greater or smaller as occasion required. The general result obtained was, that when the blow was powerful enough to bend the bars through one-half of their ultimate deflection, (that is to say, the deflection which corresponds to their fracture by dead pressure,) no bar was able to stand 4000 of such blows in succession; but all the bars, when sound, resisted the effects of 4000 blows, each bending them through one-third of their ultimate deflection.

Other cast iron bars, of similar dimensions, were subjected to the action of a revolving cam, driven by a steam engine. By this they were quietly depressed in the centre, and allowed to restore themselves, the process being continued to the extent even, in some cases, of 100,000 successive periodic

* From the London Civil Engineer and Architect's Journal, for February, 1850.

depressions for each bar at a rate of about four per minute. Another contrivance was tried, by which the whole bar was also, during the depression, thrown into a violent tremor. The results of these experiments were, that when the depression was equal to one-third of the ultimate deflexion, the bars were not weakened. This was ascertained by breaking them in the usual manner with stationary loads in the centre. When, however, the depressions produced by the machine were made equal to one-half of the ultimate deflexion, the bars were actually broken by less than 900 depressions. This result corresponds with and confirms the former.

By other machinery, a weight equal to one-half of the breaking weight was slowly and continually dragged backwards and forwards from one end to the other of a bar of similar dimensions to the above. A sound bar was not apparently weakened by 96,000 transits of the weight.

It may, on the whole, therefore be said that, as far as the effects of reiterated flexure are concerned, cast iron beams should be so proportioned as scarcely to suffer a deflexion of one-third of their ultimate deflexion. And as it will presently appear that the deflexion produced by a given load, if laid on the beam at rest, is liable to be considerably increased by the effect of percussion, as well as by motion imparted to the load, it follows, that to allow the greatest load to be one-sixth of the breaking weight is hardly a sufficient limit for safety, even upon the supposition that the beam is perfectly sound.

In wrought iron bars no very perceptible effect was produced by 10.000 successive deflexions by means of a revolving cam, each deflexion being due to half the weight which, when applied statically, produced a large permanent flexure.

Under the second head, namely, the inquiry into the mechanical effects of percussions and moving weights, a great number of experiments have been made to illustrate the impact of heavy bodies on beams. From these it appears that bars of cast iron of the same length and weight, struck horizontally by the same ball, (by means of the apparatus above described for long continued impact,) offer the same resistance to impact whatever be the form of their transverse section, provided the sectional area be the same. Thus a bar, $6 \times 1\frac{1}{2}$ inches in section, placed on supports about 14 feet assunder, required the same magnitude of blow to break it in the middle, whether it was struck on the broad side or the narrow one, and similar blows were required to break a bar of the same length, the section of which was a square of 3 inches, and therefore of the same sectional area and weight as the first.

Another course of experiments tried with the same apparatus showed. amongst other results, that the deflexions of wrought iron bars produced by the striking ball were nearly as the velocity of impact. The deflexions in cast iron are greater than in proportion to the velocity.

A set of experiments was undertaken to obtain the effects of additional loads spread uniformly over a beam, increasing its power of bearing impacts from the same ball falling perpendicularly upon it. It was found that beams of cast iron, loaded to a certain degree with weights spread over their whole length, and so attached to them as not to prevent the flexure of the bar, resisted greater impacts from the same body falling on them than when the beams were unloaded, in the ratio of two to one. The bars in this case were struck in the middle by the same ball falling vertically, through different heights, and the deflexions were nearly as the velocity of impact.

We have also carried on a series of experiments to compare the mechanical effect produced by weights passing with more or less velocity over bridges, with their effect when placed at rest upon them. For this purpose, amongst other methods, an apparatus was constructed, by means of which a car, loaded at pleasure with various weights, was allowed to run down an inclined plane: the iron bars which were the subject of the experiment were fixed horizontally at the bottom of the plane, in such a manner that the loaded car would pass over them with the velocity acquired in its descent. Thus the effects of giving different velocities to the loaded car, in depressing or fracturing the bars, could be observed and compared with the effects of the same loads placed at rest upon the bar.

This apparatus was on a sufficiently large scale to give a practical value to the results; the upper end of the inclined plane was nearly 40 feet above the horizontal portion, and a pair of rails, 3 feet assunder, were laid along its whole length for the guidance of the car, which was capable of being loaded to about 2 tons; the trial bars, 9 feet in length, were laid in continuation of this railway at the horizontal part, and the inclined and horizontal portions of the railway were connected by a gentle curve. Contrivances were adapted to the trial bars, by means of which the deflexions produced by the passage of the loaded car were registered; the velocity given to the car was also measured, but that velocity was, of course, limited by the height of the plane, and the greatest that could be obtained was 43 feet per second, or about 30 miles per hour.

A great number of experiments were tried with this apparatus, for the purpose of comparing the effects of different loads and velocities upon bars of various dimensions, and the general result obtained was, that the deflexion produced by a load passing along the bar was greater than that which was produced by placing the same load at rest upon the middle of the bar, and that this deflexion was increased when the velocity was increased. Thus, for example, when the carriage, loaded to 1120 lbs. was placed at rest upon a pair of cast iron bars, 9 feet long, 4 inches broad, and $1\frac{1}{4}$ inches deep, it produced a deflection of 6-10ths of an inch; but when the carriage was caused to pass over the bars at the rate of 10 miles an hour, the deflexion was increased to 8-10ths, and went on increasing as the velocity was increased, so that at 30 miles per hour, the deflexion became $1\frac{1}{4}$ inch; that is, more than double the statical deflexion.

Since the velocity so greatly increases the effect of a given load in deflecting the bars, it follows that a much less load will break the bar when it passes over it than when it is placed at rest upon it, and, accordingly, in the example above selected, a weight of 4150 lbs. is required to break the bars if applied at rest upon their centres; but a weight of 1778 lbs. is sufficient to produce fracture if passed over them at the rate of 30 miles an hour.

To be continued.

MANUFACTURING IN INDIANA.

Cannelton Cotton Mill.—It has been shown that Cannelton has *superior natural advantages* for a manufacturing city to any other of which we now have any knowledge. To develop these advantages, we only require the aid of men of character, intelligence and capital. To show that such men are already enlisted with us, we subjoin a list of the stockholders of the Cannelton cotton mill.

William Richardson, Dr. Chas. W. Short, Hamilton Smith, Lewis Ruffner, Perley Chamberlin, Wm. F. Pettet, Alfred Thruston, Robinson, Peter & Carey, Robinson & Brothers, Joseph S. Morris, Edwin Morris, Thomas C. Coleman, Jas. C. Ford, E. Hutchings, Col. Thomas Anderson, Robert G. Courtnay, James E. Breed, Col. Stephen H. Long, T. G. Richardson, Jacob Beckwith, Samuel L. Nock, John L. Martin, Thomas E. Wilson, Willis Ranney, Wm. A. Richardson and Chas. H. Lewis, of Louisville, Ky.; Jas. Boyd, Hon. E. M. Huntington and J. B. Smith, of Cannelton, Ind.; Col. Wm. McLane, of Bedford, Ind.; Hon. Robert D. Owen and Dr. David D. Owen, of New Harmony, Ind.; Randal Crawford, New Albany, Ind.; Hon. O. J. Morgan, Carroll Parish, La.; Hon. Henry Bry, Monroe, La.; Dr. M. J. Sellers, Lake Providence, La.; Hon. Maunsel White, and F. Y. Carlile, New Orleans, La.; Rt. Rev. L. Polk, Philadelphia, Pa.; Col. Wm. L. Campbell and Hon. F. Griffin, Greenville, Miss.; David Hunt, Rodney, Miss.; John Hutchins and R. M. Gaines, Natchez, Miss.; Charles T. James, Providence, R. I.

The above list is unquestionably the strongest of its kind ever got up in the Mississippi valley.—There is not on it the name of a speculator. Every name on it is that of a man of substance, who has money to invest every year. Most of these names represent men of fortune, who have made their estates by habitual thrift. They have not taken hold of this thing to make a fancy stock, but to make a permanent investment. If this mill meets their expectations, they are able and will be ready to build another. Indeed, we have no question but that they are able to build and put in operation such a mill as this out of their annual surplus income, and we know that Messrs. Ford, Martin, Hunt, Bry, Morgan, Campbell, Griffin, Hutchins and Gaines, could furnish a full supply of cotton to this mill out of their surplus crop. The officers of the company who receive no emolument from their offices, own about $100,000 of the stock. The contractor for the machinery has not only invested over $30,000 in and about the mill, but has invested therein his reputation as a manufacturer and mill builder.—He has pledged himself to make this mill the best, i.e., the most productive, of the kind in the world, and has stated that Cannelton is the best position now known for the establishment and operation of a cotton mill.

Of these Stockholders, one is Col. S. H. Long, the distinguished head of the U. S. Topographical Bureau in the West, who is justly regarded as the ablest and most experienced civil engineer in America. Another is Hon. R. Dale Owen, who was once a cotton manufacturer in Scotland, and whose extended observation in all the important manufacturing districts of the world fully qualifies him to judge of our advantages. Another is Dr. D. Dale Owen, whose geological information, practical and scientific, is unsurpassed. To these high authorities we refer for the truth of our statements as to the superior advantages of our position.

The Louisville stockholders are among the most prominent and successful business men of that city, and are familiar with every department of western finance, trade and commerce.

In short, these stockholders are men who do not engage in any enterprise without due consideration, and who are sure to accomplish whatever they undertake. They are not men to be discouraged by petty obstacles, and cannot be diverted from their well considered purposes by the doubts of ignorance or the opposition of other interests. There is a certainty that they will make all that can be made out of their advantages and operations here.—*Cannelton Economist.*

IMPORTS OF CORN AND OTHER GRAIN INTO GREAT BRITAIN IN 1849.

According to a return published, the total quantity of wheat and wheat flour imported into the United Kingdom in the year ending January 5, 1850, amounted to 4,825,280 quarters, of which 4,765,233 were from foreign countries, and 160,047 from British colonies; the average price of wheat during the year being 44s. 3d. The quantity of foreign barley and barley meal imported in the same year was 1,389,858 quarters, the average price being 27s. 9d. The total quantity of oats and oatmeal imported was 1,307,904 quarters, of which 1,283,834 were foreign, and 24,070 British collonial —the average price was 17s. 6d. Of ryemeal 246,843 quarters were imported; 246,822 from foreign countries, and 21 from British colonies; the average price being 25s. 8d. The quantity of peas and peameal imported was 236,525 quarters, of which 221,705 was foreign, and 14,820 British colonial; the average price being 31s. 2d. The total imports of beans and beanmeal amounted to 458,651, all of which, with the exception of one quarter, was foreign; the average price being 30s. 2d. The quantity of Indian corn and meal imported was 2,277,224 quarters, 2,274,624 being foreign, and 2,600 British colonial. The imports of buckwheat and buckwheatmeal amounted to 627 quarters, all but one quarter being foreign. In bere or bigg 843 quarters were imported. The aggregate quantity of grain and meal of all sorts imported in 1849, amounted to 10,753,755 quarters, the largest proportions being supplied by Denmark, 1,320,571; Prussia, 1,364,694; Russia, northern ports, 343,124, ports within the Black sea, 577,633; France, 1,025,009; and the United States of America, 1,834,000.

ENGLISH NAVY.

The present number of British seamen is about 270,000, of whom 200,000 belong to the mercantile marine, and 25,000 to the navy, the remainder being in foreign service. The total number of vessels belonging to the merchant service of the British empire was, in 1848, no less than 33,672, having an aggregate tonnage of 4,052,160, and carrying collectively 230,069 men. The average rate of increase in the merchant vessels for the last ten years has been 600 per annum, while the annual

increase of burden amounts, within a fraction, to 100,000 tons. By this means employment is found for 5000 fresh hands every year. The British empire possesses one third more vessels than France; while the aggregate tonnage of the British ships is upwards of four times as great as the French, and one third more than the collective burden of the American vessels. An idea of the extent of the foreign trade carried on by this country may be formed from the number of British and foreign vessels that annually enter the several ports of the United Kingdom. Those in 1848 amounted to 35,000 vessels, 13,000 of which were foreign, having a gross burden of 6½ million tons, and giving employment to nearly 350,000 men. The total value of the exports and imports effected by such means amounts to upwards of 75 millions per annum. According to the estimate of Mr. G. F. Young, the ships engaged in the mercantile marine are worth £38,000,000. The sum annually expended in building, repairing, and outfitting new and old ships amounts to £10,500,000—and the cost of the wages and provisions for the seamen engaged in navigating the merchant vessels to £9,500,000; while the amount annually received for freight by the ship owners is said to come to £29,500,000.—The foreign trade, in connection with the port of London, is very nearly one fourth of the entire maratime commerce of the United Kingdom. The number of vessels that entered the port of London in 1847 was upwards of 9000, and the gross tonnage nearly 2,000,000; the rate of increase being about half a million tons and 2,500 vessels in five years, or 100,000 tons and 500 vessels per annum.

Progress of Oswego.

Oswego seems to be gaining rapidly upon Buffalo as a point of transhipment of western produce. The following tables will show the number of tons transhipped at each port, with the increase of the same, since 1840:

	Buffalo & Bl'k Rock. Tons.	Oswego. Tons.
1840	138,101	20,047
1841	194,750	29,426
1842	190,967	30,510
1843	221,236	35,140
1844	240,548	67,477
1845	233,135	71,416
1846	396 512	110,318
1847	659,966	152,874
1848	492,280	157,874
1849	535,086	233,583

The business of this State is not included in the above statement, and if added would increase the figures at each place only about ten per cent.

The following statement shows the value of all property shipped, whether from this State or Western States and corroborates the foregoing:

	Buffalo & Bl'k Rock.	Oswego.
1840	$6,200,289	$1,677,069
1841	9,706,924	2,182,349
1842	7,541,793	1,674,015
1843	9,732,616	2,205,327
1844	8,188,339	3,314,412
1845	9,510,155	3,810,490
1846	15,819,314	4,652,665
1847	28,503,745	7,440,131
1848	17,917,538	7,099,076
1849	20,647,562	8,926,194

A general knowledge of the character of the business may be had from the values of last year.

	Buffalo and Bl'k Rock.	Oswego.
The forest	$2,699,222	$977,387
Product of animals	5,516,269	1,809,349
Vegetable food	10,442,407	5,327,367
Other agricultural products	370,696	35,263
Manufactures	512,318	290,621
Merchandise	126,177	27,054
Other articles	980,473	459,153
	$20,647,562	$8,926,194

This shows a total shipment at the two places of $29,573,866, and exceeds the highest value, in any one year, of property delivered at tide water, from all the canals, prior to 1844. The largest year was 1843, when it was $28,453,408.

At the present rate of increase in the trade of Oswego, with the advantage she has over Buffalo, of an additional lake, (Ontario,) and with reciprocal trade with Canada, limits can hardly be set to the rapidity and extent of her progress.

Tonnage of San Francisco.

We are indebted to the Hon. Wm. D. Fair, of the California Senate, for the subjoined statement made by the Harbor Master of San Francisco:

Statement of the amount of tonnage, American and foreign, also the number of passengers, both American and foreign, that have arrived in the port of San Francisco from the 12th of April, 1849, to 28th February, 1850, both inclusive:

American tonnage	247,417
Foreign do	65,934
Total	313,351

Number of vessels, exclusive of those for government:

American	555
Foreign	356
Total	911

Number of passengers that have arrived in same:

	Female.	Male.	
American	930	30,574	31,574
Foreign	628	9,507	10,135
Total			41,709

Number of officers and seamen that have left their vessels, from various causes 14,240

Total number of persons arrived in the above vessels 55,949

Amount of tonnage and passengers arrived from January 29th to February 28th, 1850, inclusive:

American	19,146
Foreign	9,556
Total	28,712

Passengers:	Female.	Male.	
American	21	1,149	1,170
Foreign	126	887	1,013
Total	147	2,036	1,183

Ed. A. King, Harbor Master.

Harbor Master's Office, San Francisco, March 1, 1850.

Iron Manufacture in Maryland.

We copy the following from the Baltimore American relative to the condition of the iron business of that State:—

We have six rolling mills for bars and rails in this State, and they are *all stopped* but one, and that one is not fully employed.

The furnaces in our state which have stopped, and to which others will be added as soon as the stock on hand is worked up, are as follows, viz:—

Two at "Mount Savage."
The "Lena."
" "Vulcan."
" "Catoctin."
" "Sykesville."
" "Muirkirk."
Two at "Patuxent."
The "Elkridge."
" "Maryland."
" "Locust Point."
" "Chesapeake."
" "Curtis Creek."
" "Oregon."
One of the "Ashland."

Indiana.

New Albany and Salem Railroad.—The superstructure for the first 12 miles out from this city is ready for the iron, and by the time this part of the track is fully completed and made ready for the cars the superstructure will be finished to Providence. That portion of the road forfeited by the original contractors, lying between Providence and Salem, has been re-let, and is to be finished for the cars by the 1st of July. Beyond Salem, on to Saltillo, they are progressing rapidly with the work, with the intention of completing it to the latter place by December, which will give us about 46 miles of the road the coming winter.—*New Albany Bulletin.*

☞ The Legislature of Pennsylvania has passed a general banking act, regulating the banks of that State that shall hereafter be chartered and re-chartered. By this law the liability principle is extended to all issues of banks; all foreign notes, or the notes of other States under the denomination of ten dollars, are excluded from circulation in that commonwealth; the directors are made personally liable for the deposits and other debts, in case of the fradulent insolvency of banks; cashiers are required to give bonds to the amount of one-fifth of the capital, when it is $200,000 and under; in one-eighth when it is between $200,000 and $500,000, and in one tenth where it is over $500,000, and not exceeding $1,000,000. The extent of the term for which each bank shall be chartered is fifteen years. Banks can be chartered for a less period, but none for a greater, in the aggregate.

Depths of the European and Open Seas.

In the neighborhood of the continents the seas are often shallow: thus the Baltic sea has a depth of only 120 feet between the coasts of Germany and those of Sweden. The Adriatic, between Venice and Trieste, has a depth of only 130 feet. Between France and England the greatest depth does not exceed 300 feet, while southwest of Ireland it suddenly sinks to 2000 feet. The seas in the south of Europe are much deeper than the preceding. The western basin of the Mediterranean seems to be deep. In the narrowest parts of the straits of Gibraltar it is not more than 1000 feet below the surface. A little further towards the east the depth falls to 3000 feet, and at the south of the coast of Spain to nearly 6000 feet. On the northwest of Sardinia, bottom has not been found at a depth of nearly 5000 feet. With respect to the open seas, their depths are little known. About 250 miles south of Nantucket the lead has been sunk to 7800 feet. In north latitude, at 76°, Captain Ross has exceeded 6000 in Baffin's bay. But the most astonishing depths are found in the southern Atlantic; West of the Cape of Good Hope, 16,000 feet have been found, and the plummet has not found bottom at 27,600 feet west of St. Helena. Dr. Young, relying upon the theory of the tides, considered himself justified in assigning about 15,000 feet to the Atlantic, and about 20,000 to the Pacific.

Consolidation of the Auburn and Rochester, and Auburn and Syracuse Railroad Companies.

We are much gratified to learn that at the adjourned meeting of the committee of shareholders of the Auburn and Rochester and Auburn and Syracuse railroad companies, held at Boston on the 9th inst., the terms of consolidation of all the stock, property, and effects of these two companies, was finally agreed upon, to take effect on the first day of August next, after which date, the consoldated company is to bear ths name of the *Rochester and Syracuse Railroad Co.*

The aggregate capital of the two companies will amount to about $4,200,000, and the extent of road embraced is 94 miles.

The basis of the amalgamation we understand to be essentially that proposed by Henry B. Gibson, Esq., President of the Auburn and Rochester road, the terms of which are considered just and equitable to all parties concerned.

This movement is one which cannot fail to prove beneficial to the interests of the stockholders of these two companies, and will at the same time accord equally with the interests and wishes of the travelling public. Many vexatious inconveniences have heretofore been encountered by reason of the number of companies comprising the line be-

tween this and Buffalo. And we are gratified to know that further improvements of this character are in progress, and likely to be consummated, by an amalgamation of the Attica and Buffalo and Tonawanda companies.

It is understood in connection with this subject that as soon as the process of consolidation is complete in all its details, a meeting of the stockholders will be called to decide upon the construction of a branch of the consolidated company, to be built as nearly as possible in a straight line between the cities of Rochester and Syracuse, which, we are infomed when completed, will shorten the distance between Albany and Buffalo by this line, nearly 20 miles.—*Alb. Jour.*

Ohio.

Hamilton Railroad.—In answer to inquiries made, we take great pleasure in saying that the President and directors of the Cincinnati, Hamilton, and Dayton Railroad, have fully succeeded in compromising all difficulties between this city and Hamilton, except a few so trifling in their character as to be the objects of no particular concern.

We take further pleasure in stating, that on every half mile of railroad, between the two points named, laborers are now engaged, who are tasking their best energies to push the work forward with expedition. Difficulties being removed, the stock taken, and money ready at call, there is nothing on this section of the work to prevent energetic movements, and we doubt not that everything will proceed with rapidity to the completion of the work.—*Cin. Gaz.*

North Carolina.

Progress of the Manchester Road.—The Wilmington Commercial of Tuesday says: "We learn that there has been $50,000 worth of work done on the Wilmington and Manchester railroad west of the Pee Dee river, and that $25,000 worth has been done on the eastern end of the road; and that there are upwards of two hundred men now working on the road, and on the first of August it is expected that 400 will be engaged on the work. Preliminary steps have been taken to buy iron for the western end, and in all probability, contracts will be made at the same time for the other part of the road. Negotiations have been opened with a northern company to complete all the unfinished work of the road.

"These are cheering facts, and shows that there is no cause to apprehend any danger as to the fate of this enterprise. It will not only be done, but will be put in operation quite as early as the most sanguine of our people expected."

Pennsylvania.

Lebanon Valley Railway.—This road is to connect Harrisburg and Reading. The length will be about 48 miles; and the Lebanon valley offers every facility for a cheap railway. We expect to derive some advantages from it. It will attract a respectable share of the produce of the great Central railway, and thus afford us cheaper food, via Reading railroad. But, more than this, it will give a new and profitable source of revenue to our railroad and thus enable it to reduce the heavy freight charge on coal, a burden which our staple cannot bear. In this respect we cannot estimate too highly the revival of the charter of the Lebanon valley road, which was originally granted in 1836. To the Reading railroad company we estimate the value of the new road, when made, at not less than five millions of dollars. Certainly it will yield a revenue interest on that sum: for we feel confident that the great passenger travel for the west will prefer the Schuylkill and Lebanon valley route to the Central road, and no inconsiderable proportion of the up merchandise will find its way through the same channel.—*Mining Register.*

Illinois.

Alton and Sangamon Railroad.—In our paper of the 9th March last, we gave an account of the organization of this road. The distance from Alton to Springfield, its present northern terminus, is 73 miles; but it is in contemplation to extend it to La Salle, the southern terminus of the Illinois Canal.

The capital of the company is $1,000,000, half ($500,000) of which has been subscribed.

The road is located for about twenty miles, and the surveys on the remaining part are being pushed ahead rapidly.

The first division to Carlinville, 33 miles, will be let in a few weeks, and prosecuted vigorously to a completion.

About 10 miles, graded by the State about ten years since, is ready for the rails.

Correspondence of the Journal.

Buffalo, N. Y., May 6, 1850.

H. V. Poor, Esq.,

Dear Sir:—When I left you last Friday in New York, I had no idea I should be in this city as late as to-day; nor would this have been so, had I taken the Erie railroad, which business in Albany alone prevented my doing. This road I find now connects with the line of the Albany and Buffalo road at Geneva, to which place passengers are brought by steamboat from the head of Seneca lake. By this arrangement some time and expense are saved over that of the route by Albany—in our case enough to have made it an object to have returned from Albany to Piermont, and there taken the Erie railroad; but no one could have anticipated the delays and impositions that we experienced upon this northern line of roads, and which, for all that we know, may be continued on other unfortunate travellers.

The Albany and Buffalo roads advertise the time of leaving of five different trains each day—in some papers excepting Sundays, in the Syracuse Star making no exceptions. No time of arrival at their destinations is given. The "Express train" of the morning, however, is said to go through in fourteen hours; and the ticket master at Albany stated to me that the evening train went through in about the same time; indeed he called it an Express train, and spoke of its being so expeditious, that I inquired if we paid an extra price in it over the other trains. We purchased our tickets at $9 75 each, and left Saturday evening at 7 o'clock, after positive assurance to myself and several other passengers, that we should certainly be in Buffalo Sunday morning. At half past eleven we reached Utica, and were informed we must wait two hours and a half. Sat in the cars till 2 A. M., and then proceeded to Syracuse; arrived at 5, and stopped. No notice was given that we were to be detained here, but we were left to find out for ourselves that we should remain in Syracuse till half past five in the afternoon. No officer of the road nor conductor made his appearance, or was found at the depot during the day. I inquired of one of the hands, who was the superintendent, and was very gruffly told he did not know. Of course the passengers were not a little disturbed. One gentleman, whose name I send you, had come on with his sister from New York, to attend the funeral of a brother near Canandaigua. It was to be on Sunday, and it was now impossible to reach the place in time. He had been very particular in his enquiries of the ticket master at Albany, and was fully assured by him there would be no detention, and by the conductor at Utica there would be none, unless the cars were stopped at Rochester.

We found at Syracuse we were not the only sufferers by this mismanagement on the roads. A train with many passengers from the west arrived there at midnight, a few hours before us. The passengers, I found by conversing with several of them, had been told, some by the ticket master at Rochester, some at Canandaigua and Geneva, and by the conductors east of Geneva, that they should certainly reach Albany Sunday morning. At Syracuse they found they must wait till after nine o'clock Sunday evening. Like ourselves, they were obliged to be two nights on the road, and spend a rainy disagreeable Sunday in Syracuse.

Leaving Syracuse in the evening, we reached Rochester at twelve o'clock, and here to our dismay we were told we must again wait till six in the morning. At six this morning we again entered the cars, and were at last fairly put down in Buffalo at half past nine—*thirty eight and a half hours* after leaving Albany!

We have been subjected to this treatment with such coolness and indifference on the part of the officers of the road—not a word of explanation or apology having been offered, and passengers by both trains having been alike deceived by false representations—the freight trains also, as we learn by forwarding merchants here, being at least four days behind—it appears that there is something going wrong in the management of the roads, which should demand immediate correction. Collisions and serious accidents upon roads are not often to be ascribed to the officers who direct the affairs of the road; blame is frequently, however, attached to them for these, and the company suffers by the payment of damages. But in these instances of great annoyance as well as of expense and loss to individuals, the managers can very rarely be reached by the sufferers. A road liable to such irregularities must in time become unpopular, and the travel be turned to other parallel routes under better arrangements. These parallel routes are in fact the only security to the travelling public; and the only satisfaction to us in our troubles is, that the Erie road must act as a wholesome check upon this line of roads, and when passengers find themselves badly treated upon one, they can return, as we propose to do, upon the other. G. B. C.

SAFETY STEAM ENGINE.

A Virginia paper states that Mr. Tippet, after great labor and discouragement, "has produced a beautiful one horse power model, the working of which more than justifies the hopes of the most sanguine." "It dispenses entirely with boilers.—The steam is raised by means of a small jet of cold water injected upon a large plug of iron fixed in the furnace, and of sufficient bulk to retain the heat that might be dissipated; by a very simple but perfect contrivance, this steam enters the cylinders, and moves the piston in a manner similar to a common engine. The amount of power is limited only by the strength of the materials. It is infinitely less complex than the common engine, and it is believed that for a given amount of power it can be more economically worked; but the great beauty is its immunity from accidents. It is utterly impossible for any explosion of any extent to occur, for the simple reason that there is nothing in it larger than a cylinder to explode."

A patent right has been taken out for the invention, and it is said that "an effort is to be made this summer to construct a boat and fit her up with one of the engines as an experiment."

We wish success to the invention, but are not machinists enough to express an opinion as to the practicability of bringing this cold water steam engine into general use.—*Baltimore Clipper.*

AMERICAN RAILROAD JOURNAL.

Saturday, May 18, 1850.

Illinois Central & Mobile and Ohio Rail Roads.

Grants of Land for Railroad Construction.

We are glad to learn that the bill, granting a portion of the public lands in the States through which the proposed roads are to run in aid of the above works, has passed the Senate, and that it has a good prospect of passing the House.

Any public work that has a tendency to promote a similarity of pursuits and interests, consequently a similarity of ideas which form the basis of all social harmony, is a public benefit, and its encouragement is warranted by this reason alone. The differences of opinion which now threaten the peace of the country, are founded entirely in the difference in the pursuits between the two extremes of the Union. The North is largely interested in manufacturing and in commerce, while the South is almost exclusively engaged in agriculture. The interests of the two have, mistakenly so we think, been believed to be adverse. Now a railroad, wherever it goes, changes the whole aspect of a community. It gives a new stimulus to industry, because it makes available whatever can serve our wants, or be made a subject of merchandise. It exerts the same influence in the North, South and West. Wherever it runs by a coal field, a bed of iron ore, or a waterfall, it at once sets people to turning these raw materials and this waste power to account. People feel that it is not right that these resources should lie idle, when by using them they can add so much to their comforts, and the means of satisfying their wants. The railroad is the pioneer, and the various arts of life follow close upon its progress. Spread railroads over the whole country, and at the same time you diffuse the same pursuits, and create similar interests over the whole of it, and you ensure a harmony of action in the measures adopted for the material good of the community. Railroads connecting every part of the country bring often together those occupying its extreme portions, and thus a similarity of tastes and ideas are the result. People by seeing, learn to understand each other; the same modes of thinking, similar habits and pursuits, are secured to the whole Union; the same good feeling and mutual confidence which unites into one body the people of a village or a town. Railroads therefore are the most powerful bond of union that modern society possesses. It is a new agent for the concentration of political organizations, not taken into account in the formation of the constitution, yet vastly more powerful than any which then existed.

The roads alluded to will form a direct communication from Lake Michigan to the Gulf of Mexico: thus bringing the extremes of the Union into familiar intercourse with each other, by a more direct and expeditious route than any other that can be constructed.

These views will, we think, as a general thing, be admitted to be correct; but we are so accustomed to discard the moral, and to look solely at the material results in legislation, that it is difficult to get our legislature to act upon such considerations, unless they are shown to be in harmony with our greatest material good: unless in a pecuniary point of view we are the gainers. It is this end alone that can furnish sufficient ground for action. If our moral and intellectual good are promoted, so much the better; but the first and not the last must furnish our excuse for action.

In the case before us it is said that the act is for the benefit of the States to which the lands are granted, and that Maine for instance gains nothing by the grant. It is very easy to show that the contrary is the truth. Maine is a manufacturing and commercial State. The West to a large extent is her customer. Now every additional avenue opened in that section, enables the western farmer to buy more than formerly, on account of greater cheapness of transportation. The same cause, too, reduces the cost of the provisions which the eastern manufacturer obtains from the West. The West will undoubtedly receive a greater benefit than Maine from the grant, but this constitutes no reason against it, unless it can be shown that Maine, in common with the East, derives a less advantage from the construction of the above roads than the value of her portion of the lands ceded. We think that there can be no doubt but that the East would be the gainer by the bargain. It may not be easy to prove this in the case before us, because the data for it can only follow their construction. But the influence of similar works may serve as a guide for this. How is it with the Erie canal? Has not every New England State derived a greater advantage from this work than its whole cost, in the diminished price of their food, a greater part of which reaches them through that channel, and in the outlet it has opened for forwarding to the western consumer the products of the East? Has not Massachusetts been benefitted by this canal to an amount ten times greater than its cost? There can be no doubt of this. Other States are benefitted in the same proportion to which they use it. Yet these States would undoubtedly have opposed any grant of lands to aid its construction, notwithstanding they were so deeply interested in its success. What is true of the Erie canal is true of every public work in the United States. The only difference is in the degree of benefit. The test of aid should be made to depend upon this degree. If the public generally are to derive a much greater advantage from the construction of a work than the amount of aid granted, there can be no objection against extending it, because the public is the gainer by the transaction. We believe that the above roads come within this rule. No works of the kind more important and general in their influences, can be constructed in any part of the Union. They unite the great Lake and the Gulf by the shortest possible line and by a route most favorable to a railroad. They are works of the first magnitude as to extent, and must be so as to their usefulness to the whole country.

But in the case before us, the States aided are to pay for one half of the land within the limits of their grant, and at a minimum rate of $2 50 per acre. If the road should be constructed there can be no doubt but that they will readily command that sum. Government in such an event will get as much from these lands as she now asks for them. She will lose nothing, while those States interested in the roads will receive an immense benefit, which will be shared in common by our whole people.—We earnestly hope that the bill will become a law, as we think it will essentially aid in the construction of works thus assisted, and which without it we fear are beyond the ability of those constructing them to complete.

Patent Dust Arrester for Railroad Cars.

The clouds of dust stirred up and attracted by railroad cars in motion are indeed a very great nuisance to passengers, and we are glad to find that this nuisance is about to be *arrested* by a very simple and ingenious contrivance. Mr. Cunningham, a mechanic, of Reading, Pa., has obtained a patent for preventing this dust nuisance, by means of jets of air passing across the windows in lines parallel to the sides of the carriage. The jets are obtained in this way: a fan is attached to the top of the carriage and worked by a strap which obtains motion from the axletrees, the revolution of the fan sending a blast throngh a chamber or closet running the whole length on the top of the carriage. A small pipe fed from this chamber passes down the side of the carriage between each window, and being plugged at the end the air forced from the chamber rushes through an elongated slot in a strong steady current—a sheet of rushing air—across the window. The blast tube consists of two parts, a plugged extremity perforated with one long vertical slot revolving around the tube connecting with the air chamber, so that the latter having two similar slots, one directly opposite the other, the direction of the current may be altered at pleasure, or if necessary shut off altogether. The slot blast apparatus may be made of block tin, at a cost of some fifty dollars, and obtaining a connection from one carriage to another by means of a flexible hose, six or eight carriages may be furnished with this really useful contrivance for about twenty five dollars each. Mr. Mitchel of the Western and Atlantic railroad, Georgia, is about to give the dust arrester a trial on his road. This contrivance will furnish one of the luxuries of locomotion, for beside the arresting of dust, the rush of wind may be made to maintain the temperature in the hotest day of summer at a given point. Mr. Cunningham has our hearty good wishes: his invention is not more ingenious than it is useful.

AMERICAN RAILWAY GUIDE

FOR THE UNITED STALES.

We have omitted to speak of this work, which is issued monthly, "revised and corrected," and contains the running time of every railroad in the country, with distances, stopping places, etc., etc., together with all such information as every traveller wishes to carry in his pocket. It is illustrated by a map of the railroads in the United States, and we commend it to every person wising the information it contains. C. Dinsmore, Publisher, 138 Fulton street, New York.

Ohio.

Every part of this great State is now thoroughly aroused to the work of railroad construction. Unlike many other States, Ohio is uniformly fertile and well settled, and nearly every portion of it well adapted to the building of railways. Almost every farmer in the State is now intent upon obtaining the advantages of these highways for the purpose of lessening the cost of transporting his products over the present inconvenient, and frequently impassable common roads.

Ohio is soon to have more miles railroad than any other State in the Union. For local purposes alone her citizens will not be content till every one is within a convenient distance of a road. This will secure their general construction. In addition to this such is her local position that she must have a large number of through lines, connecting the great water courses which bound her northern and southern frontier, and the railroads running to her eastern

and western border. All the great lines from the Northern, Eastern and Middle States, embracing Virginia, must run through Ohio. New England and New York will follow along the south shore of Lake Erie. Pennsylvania has adopted a line 50 or 60 miles south of this, running through Wooster, Mansfield, etc. Maryland will take the central route through Zanesville and Columbus; and Virginia the Belpre and Cincinnati railroad, running through Athens, Chillicothe, Hillsboro, etc., making four great lines through the State from east to west; all of them forming parts of great trunk lines running from the Atlantic to the Mississippi. These four roads cannot average much less than 225 miles each in length.

From north to south there is, first, the Cleveland and Pittsburgh railroad. The portion of the road embraced in Ohio is about 110 miles. Next the Cleveland, Columbus and Cincinnati. This road unites with the Little Miami at Xenia, 189 miles from Cleveland, and 65 from Cincinnati. Next comes the Columbus and Lake Erie railroad, which, in connection with the Scioto Valley railroad, will connect Sandusky and Portsmouth, on the Ohio, by a line of about 250 miles. Fourth, the Little Miami and Mad river railroad, connecting Sandusky and Cincinnati by a line of 218 miles, making an agregate of through lines running north and south of 737 miles. To this last may be added the Cincinnati, Hamilton and Dayton railway, which though now building to Dayton, will without doubt be pushed north, following the valley of the Miami and the line of the Miami canal to the Maumee river and to Toledo; this making an additional line running through the State north and south, and adding about 225 miles to the above aggregate.

The above are the great trunk lines which are to run through this State. From each of these, branches are either in process of construction, or in contemplation, which will penetrate every considerable town in the State. Allowing that these branches with other roads which have or will soon be commenced, will make an extent of line equal to one-third of what we have enumerated, and we have an extent of over 2,500 miles as the probable amount of railroad which is soon to be in operation or in construction in this State.

This may seem a high, but we do not think that it is an extravagant estimate. There are in the New England States (not embracing Maine, one-half of which is still a forest,) 2,100 miles of railroad in operation within an area of 29,280 square miles, making one mile of railroad to every 14 square miles. The same ratio would give Ohio 2,850 miles of railroad. The time cannot be far distant when Ohio will have as many railroads in proportion to her territory as New England. It is much better adapted to the construction of these works. She possesses vastly greater natural resources than the former, and these works are much more necessary with her, from the difficulty of constructing good common roads, than with the Eastern States. From all these influences we have a right to expect that she will soon take the lead of all the Eastern States in the extent of these works.

Of the roads referred to, the Cleveland and Pittsburgh is under contract from the lake to the Ohio river, a distance of 98 miles. This part of it is in a state of great forwardness, and about 70 miles of it is to be opened during the year. The iron for this portion has been purchased by the bonds of the company in England. Connecting the Ohio and Lake Erie by the shortest possible line, it bids fair to become a very important work, and must forever be without a rival, for the business appropriate to the route it occupies. Over it must pass a large amount of merchandise, to be distributed through the region bordering upon the Upper Ohio.

The Cleveland and Columbus railroad comes next in order. The road is nearly prepared for the iron, which is being rapidly laid. The Xenia and Columbus railroad is in successful operation. The Columbus and Lake Erie, extending from Mansfield, the southern terminus of the Sandusky and Mansfield railroad, to Newark, is nearly completed. South of this point the work of construction has not yet been commenced; but measures are now being taken to secure the necessary means. In addition to private subscriptions, the counties and the large towns along its line have authorised to subscribe largely to the work, and we believe that in no instance in this state has a town or county voted against the propositions to subscribe to railroads, when authorised to do so.—Upon the lines running through the State east and west but little has been done, except upon the Ohio and Pennsylvania and the Bellefontaine and Indiana, which, together, will form a continuous line of 300 miles from Pittsburgh to the Indiana State line. A considerable portion of both of these roads is now under contract. Companies are now organising for the construction of the Lake Shore road. That portion of it from Cleveland to the Pennsylvania State line has been surveyed, and we learn from good authority that no difficulty will be found in obtaining the necessary means of construction. The Shore road is a very important work for the purpose of connecting the roads now in progress from Buffalo to the Ohio State line, and the Michigan Southern, which is now in progress to the south shore of Lake Michigan and Chicago. From this last place a road is in progress to Galena on the Mississippi.

The Ohio Central has recently commenced operations. The first lettings will take place on the 20th inst, of that portion of the road between Zanesville and Newark, a distance of 26 miles. On the Belpre and Cincinnati road the work is under contract to Hillsboro, and a large portion of the remainder is being prepared for letting. Upon all of the above lines are the people of the sections through which they run able to prepare the road for the superstructure, by private subscriptions, without making use of those made in their public and corporate capacity, by the towns and counties. These should in all cases be reserved for the purchase of Iron and the equipment. Where this cannot be done, the construction of the road can hardly be justified.—Where the people do not possess sufficient means to prepare the road for the rails, there is a strong probability that they cannot give the road sufficient business to support it. They had better wait till they gain sufficient strength to do this.

In addition to these leading lines, there are many others of less extent in progress. Among them are the Iron railroad, from Ironton or Hanging Rock to the coal and iron mines of Jackson and Lawrence counties, and the Eaton and Hamilton railroad. A great many others are preparing to commence work, and will be in progress as soon as the necessary steps can be taken. These works, as we said before, will continue until the railroad shall become the common medium both for travel and transportation for the whole State.

In view of the immense demand which these works will create for iron, it becomes an interesting question, who shall furnish this important item. Shall it be made from Welsh ores, and be transported 4,000 miles, and be paid for in wheat sent an equal distance, or shall it be made from the ores over which the roads are to run, and paid for by the wheat raised on the spot where it is consumed? Thus far the Welshman has had the market, shall he continue to retain it?

Missouri.

Pacific Railway.

We omitted to mention at the proper time that upon the final organisation of this company, the following gentlemen were chosen directors, viz:—John O'Fallon, Thomas Allen, James H. Lucas, D. D. Page, George Collier, James E. Yeatman, Edward Walsh, Luther M. Kennett and Louis A. LaBeaume.

At a subsequent meeting of the Board, William Allen, Esq., was elected President of the company, and will we presume have entrusted to him the principal management of the affairs of the road; for which place he is well qualified, and to which he is eminently entitled by reason of services in promoting this great work.

The friends of this road in the East, will be gratified to learn that James P. Kirkwood, Esq., late Superintendent of the New York and Erie railroad, has been appointed its Chief Engineer. Mr. Kirkwood carried with him the reputation of a skilful and thoroughly educated engineer, united with great executive ability in the field, and a very extended experience in his profession. A better selection could not have been made, both for the interest of the road and for the purpose of imparting to it the confidence of the capitalists in this section of the country.

NEW YORK AND ERIE RAILROAD.

Charles Minot, Esq., of Boston, has been chosen Superintendent of this road, in place of James P. Kirkwood, who vacated that office for the purpose of taking charge of the Engineering department of the Pacific railroad. Mr. Minot has been long and favorably known as Superintendent of the Boston and Maine railroad, and his appointment to his present office is no more than a just complement to the qualifications which fit him for the post he occupies.

Thomas S. Williams, Esq., late of the Sullivan railroad, New Hampshire, succeeds Mr. Minot as Superintendent of the Boston and Maine railroad.

Hudson River Railroad.

We learn from our exchanges, and from the advertisement of lettings which we copy from one of them, for the benefit of the contractors among our readers, that the directors have determined to put the work under contract from Poughkeepsie to Albany. As to the condition of the company, its means, liabilities, prospects, etc., we are not informed.

MANUFACTURE OF CAR WHEELS.

The Chattanooga Gazette says: "A company in Raleigh, N. C., has commenced the casting of car wheels, and will soon engage in manufacturing cars and locomotives. The same business will be commenced in this place, during the summer or fall, under the most favorable auspices. The business partner in the company is now in Pittsburg, procuring an engine to propel the machinery, and carefully examining the structure of the buildings, and all the operations connected with the car manufacturing business. On his return the building will be put up, and the business commenced. We learn that in the last week, it has been determined to connect with the manufactory a rolling mill.—This is a good move. The two branches of business should be connected, as they will be mutually beneficial."

☞ Mr. George J. Bulloch, the absconding Cashire of the Central Railroad Bank, arrived in this city on Sunday night, in charge of officer Butman, of the Boston police, and Sheriff Prendergast of this place. He was taken in the harbor of Fowey in Wales, as the schooner Abel was going in. Mr. Butman appears to have been first on the ground. Having learned, on his arrival at Fowey, from the conversation of two English officers, who were also on the lookout, that the Abel had not arrived, he procured a pilot boat and crew, and played about the harbor for several days, and finally succeeded in boarding the schooner and apprehending Mr. Bulloch.

We understand that both Mr. Prendergast and Mr. Butman claim the reward offered for his apprehension. It is probable, therefore, that the bank will deposit the money, $5,000, in the custody of the court, until a bill of interpleader can be filed, and the question judicially settled.

The Abel, it appears, encountered bad weather on the passage out. She had some of her sails split, a part of her head rails washed way, and the rudder damaged.—*Savannah Republican.*

EXPORTS OF THE PRODUCE OF CANADA.

Quantity and Value of Exports of the Growth and Manufacture of the Province of Canada during the year 1849, and showing to where the same were Exported.

CLASSES.	Total value of exports.	Great Britain.	N. American.	West Indies.	United States.	Foreign countries.
Products of forest	£1,327,537 15 4	1,009,669 8 2	1,475 3 10	595 0 0	314,273 3 4	1,525 0 0
" fisheries	5,805 10 3	12 18 3	220 0 0	110 0 0	5,462 12 0	.....
Animals and their produce	104,311 0 8	9,006 17 4	7,290 6 5	1,623 4 8	86,390 12 3	.....
Manufactures	30,084 14 11	1,682 16 3	1,274 19 0	.....	27,126 19 8	.....
Liquors	3,005 10 9	1,246 16 6	328 6 6	.....	1,436 7 9	.....
Agricultural productions	821,608 5 11	326,540 8 4	105,580 6 10	1,263 10 0	388,224 0 9	.....
Unenumerated	35,211 14 10	262 15 10	412 9 5	.....	34,536 9 7	.....
Totals	£2,327,564 12 8	£1,348,424 0 8	116,581 12 0	3,591 14 8	857,442 5 4	1,525 0 0
From Quebec	1,020,176 14 4	943,405 6 4	66,577 1 4	3,268 10 0	5,400 6 8	1,525 0 0
From Montreal	451,342 2 10	401,629 6 7	49,712 16 3	.....	.....	.....
From inland ports	856,045 15 6	3,389 7 9	291 14 5	323 4 8	852,041 16 8	.....

☞ A young man of experience in Surveying wishes a situation on a Railroad as an Assistant. Please apply at this office.

Spikes, Spikes, Spikes.

ANY person wishing a simple and effective Spike Machine, or a number of them, may be supplied by addressing J. W. FLACK,
March 6, 1850. Troy, N. Y.

Notice to Contractors.

PROPOSALS will be received at the Office of the Morris Canal and Banking Co., Jersey City, till the 1st day of June next, for the Grading Masonry and Timber work for ten inclined planes on the western division of said canal, to be constructed on the same plan as Plane 6, west. Plans and specifications will be ready at the said Office and at the Office of the Assistant Engineer at Mansfield, Warren Co., on and after the 25th inst. Contracts to be entered into, and the w rk commenced immediately after the letting.

On the 30th instant the water will be drawn out of the canal at the head and foot of Plane 6 west, from 10 o'clock A.M. till 3 P.M., to give contractors an opportunity to examine the work to be constructed in the bottom of the canal.

The most satisfactory testimonials of character and responsibility must accompany the bids, and bidders are requested to state what other work, if any, they are engaged in, and the time when such work will be finished. W. H. TALCOTT, Supt. and Eng.
Jersey City, May 14, 1850.

Hudson River Railroad.

NOTICE FOR PROPOSALS.

SEALED Proposals will be received by the Directors of the Hudson River Railroad Company, at their Office, 54 Wall st., New York, until Monday noon, the 27th day of May inst., for the grading, masonry, bridging and pile bridging, to be done on the 5th Division, embracing sections No. 54 to 71 inclusive, extending from Poughkeepsie 18 miles, to Garretson's Point, two miles above Rhinebeck.

This line may be examined with plans and specifications of the work, at the office of H. A. GARDNER, Resident Engineer, in Poughkeepsie, from the present time.

Also, there will be let at the same time, Division No. 8, embracing Sections No. 86 to 100 inclusive, extending 18 miles from Stuyvesant to the Northern termination of the road at East Albany. This line and plans of work may be examined by reference to EDMUND FRENCH, Resident Engineer of this Division, at his office in Albany, after Sunday, the 19th day of this month. Proposals may be made by Sections or by Divi ions. The work on the 8th Division to be finished on or before the 1st day o February next, and that on the 5th Division on or before the 1st day of July, 1851. The remaining and intermediate Divisions and Sections will be ready to be let after a short period, when due notice will be given. The Directors reserve to themselves the right to accept or reject proposals that may be offered, as they may consider the interest of the company to require.

The party to any proposition which may be accepted, will be required to enter into contract immediately after acceptance of the same.

The names, in full, of all parties proposing to be interested in contracts, must be given in the propositions and no assignment or transfer of the bid, or contract, will be permitted.

A reserve of 20 per cent. on the monthly estimate will be retained by the company, until the contract is completed, as security for performance.

WM. C. YOUNG, Chief Engineer.
Office Hudson River Railroad Co., }
54 Wall st., May 14, 1850. }

Notice to Contractors.

CENTRAL OHIO RAILROAD.

THE Line of this road between Zanesville and Newark, a distance of about 26 miles, will be ready for examination about the 1st of May next, and Sealed Proposals for the Graduation, Masonry and Bridging of the said road will be received at the office of the company, in Zanesville, till the 20th May next.

The graduation must be completed by the 1st day of January next—the masonry by the 1st day of June, 1851—and the superstructure of the bridges by the 1st day of July, 1851. The wood work of the bridges not to be commenced until the 1st of January next.

This work will embrace some heavy rock cutting; two bridges across the Pataskala or Licking river, and one across its north branch, also several important cuts and embankments.

The bids may be predicated either upon CASH payments entirely, or upon 75 per cent. cash, and 25 per cent. in the stock of the company.

To contractors at a distance, it may be as well to observe that this work is a part of the Great Central Line, projected as an extension of the Baltimore and Ohio Railroad, from the Ohio river to Central and Western Ohio and Indiana.

The company hope to have the line from Newark to Columbus, 34 miles, ready for examination by the 15th of June next, and for contract by the 1st of July next.

By order of the Board.
ROBERT MAC LEOD, Eng. in Charge.
Zanesville, April 18, 1850.

To Contractors.

SEALED PROPOSALS will be received at the Office of the Nashville and Chattanooga Railroad Company in Chattanooga until the 20th day of May next, for the graduation and masonry of the Chattanooga Division of said Road—embracing a distance of 27½ miles.

The graduation will be heavy for about 15 miles, (in crossing Rackoon Mountain, and passing around Lookout Mountain bluffs), the balance, average work, The masonry will consist chiefly of cut stone Piers for Tennessee River Bridge, (about 4 000 Perches,) Piers for running Water Bridge, (about 2,000 Perches), and Pier for Lookout Creek Bridge, about 500 Perches.

Sealed proposals will also be received at the same time and place, for the graduation of 10 miles of the Eastern end of the Winchester Division—embracing some heavy work. Also the masonry of Elk River and Widow's Creek Bridges.

Plans and Profiles of the Work will be exhibited, specifications furnished, and all other desired information given, on application to Mr. James A. Corry, the Engineer in charge of the work, at the Company's Office in Chattanooga, from the 10th of May until the day of letting.

Before making bids the line should be throughly examined. The depths of the Cuts and Embankments can be ascertained from the centre stakes. The work to be commenced immediately after the letting. And that portion from Chattanooga to Lookout Bluffs to be completed by the 1st of December next. The other sections to be finished successively on toward the West end of the Division—the last by the 1st of October, 1851.

The most satisfactory testimonials will be required. The payments will be made in cash—reserving the usual 20 per cent. until the completion of the work.

By order of the Board.
JAMES H. GRANT, Chief Eng.
Nashville, Tenn., March 14, 1850.

PROPOSALS will be received at the offices of the Baltimore and Ohio Railroad Company, at Baltimore, Cumberland and Wheeling, up to Wednesday, the 22d day of May next inclusive, for the graduation and masonry of the portion of that road, extending from the bridge on the northwestern turnpike, over the Tygart's valley river, to a point on the south fork of Fish creek, near the mouth of Long Drain, embracing some 56 sections. Also the 8 sections between the mouth of Grave creek and the city of Wheeling.

A variety of work will be presented by the line to be let, which will include light and moderately heavy grading. Several short tunnels, and a considerable amount of bridge masonry.

Specifications may be had at the above named offices on and after the 1st of May ensuing, and further information obtained from the engineer upon the line.

Unexceptionable tesiimonials of character must accompany the bids, and the bidders are requested to state what other work, if any, they are engaged in, and when it will be completed.

The work must be energetically prosecuted.

By order of the President and Directors.
BENJ. H. LATROBE, Chief Engineer.
Baltimore, April 10, 1850. 16

8,000 Tons Railroad Iron.

THE OHIO AND PENNSYLVANIA RAILROAD CO. wish to contract for eight thousand tons of Railroad Iron, for the eastern division of their road, extending westward from Pittsburgh. Three thousand tons to be delivered on the Ohio river at Pittsburgh and Beaver, before the close of canal navigation in the present year, 1850; and the remainder in the spring of next year. The rails are to be of the H pattern, in lengths of 20 feet, and are to weigh 60 lbs. per lineal yard. They are to be subject to the inspection of Solomon W. Roberts, Chief Engineer.—For further particulars address the President of the Company at Pittsburgh.

By order of the Board of Directors.
WM. ROBINSON, Jr., President.

Patent India Rubber Steam Packing.

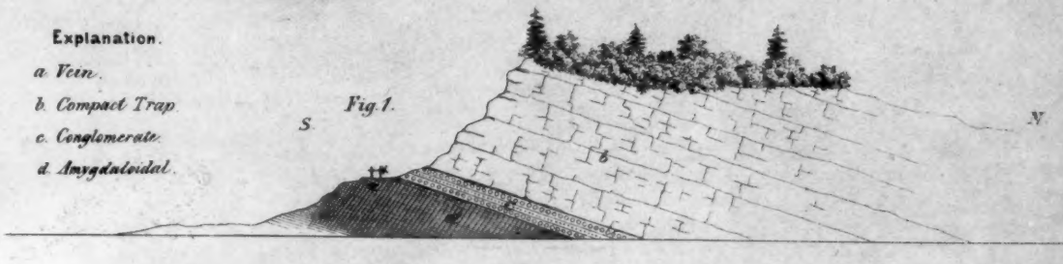
THIS article, made by the subscriber, who alone is authorised to make it, is warranted to stand as high a degree of heat *as any that has been or can be made by any person*—and is the article which has made the reputation of India Rubber Steam Packing and the demand therefor. A large assortment of all thicknesses requisite for any description of engines, steam pipes, valves, etc., constantly on hand and for sale by the manufacturer and patentee, who will give every information regarding its properties, mode of use, etc. at the warehouse. JOHN GREACHEN, JR.,
98 Broadway, opposite Trinity Church.
New York, October, 1849.

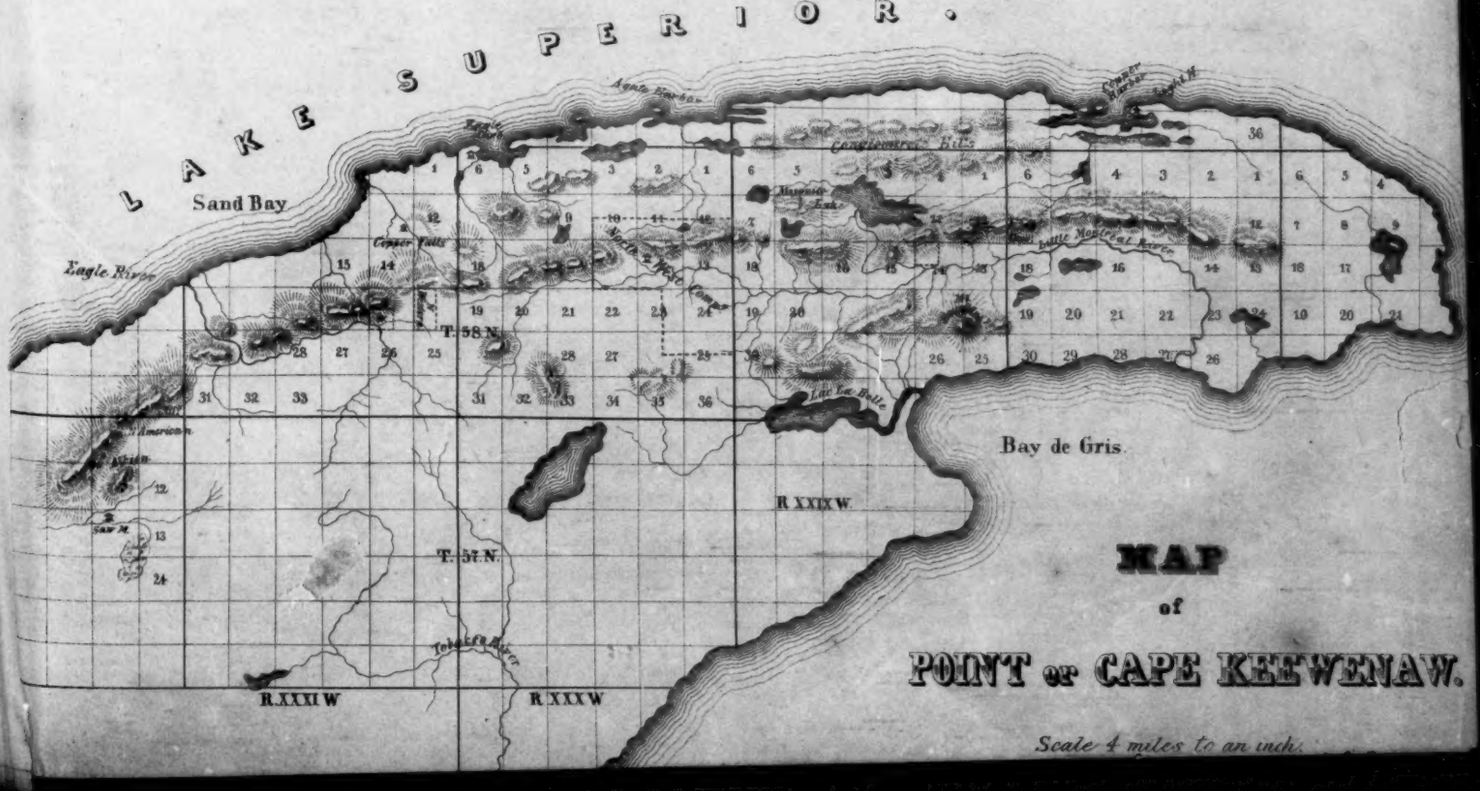
Fig. 2

Explanation.

a. Vein.
b. Compact Trap.
c. Conglomerate.
d. Amygdaloidal.

Fig. 1.





MAP
of
POINT or CAPE KEEWENAW.

Scale 4 miles to an inch.

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The present part contains beautifully executed plans, and elevations, of the Staruces, Pa., (stone) Viaduct of 17 arches, 50 feet span each, grade line averaging 90 feet above the valley bed, with the specifications, estimates, &c. &c. Also plates of the *details* of the timber and iron work of the elegant timber arch 275 feet span, at Cascade Creek, Pa. on the line of the N. Y. & Erie R. R.

N.B.—This work is published by subscription of the most eminent in the engineering profession of the U. States, and will be completed in 12 parts, at 75 cents each to those who remit their names and subscriptions before the 1st June next—when the first 6 parts or one half of the work will be published—after which the price will be raised to $1 per part.

To those making a present remittance of $5, and the remainder $4, when they have been supplied with the first six parts, the work will be forwarded regularly as published. Parties remitting $9 shall receive it monthly POST-FREE in any part of the United States.

"It is a work that was a great desideratum, and must prove of great benefit to the engineering profession generally, and especially to the tyro in practical engineering and mechanical knowledge; in truth it strikes us, that it would require years of labor and patient toil on the part of a young engineer to prepare the drawings, and collect the information that will be embodied in this work, and can now be secured for the trifling sum of $9"—[Scientific Amer. March 16, 1850.

In connection with this subject (Iron Railroad Structures) we take occasion to call attention again to Mr. Duggan's valuable and expensive publication, exhibiting drawings, with full descriptions of the various stone, iron and wooden bridges, viaducts, tunnels, culverts, etc., of all the Railroads in the United States. Mr. Duggan is an accomplished Architect and Civil Engineer, who came from Ireland to th is country to exercise his profession; but finding .tailroad construction here, in many respects, different from that he had been accustomed to in Europe, he applied himself to the study of our system; and the fruits of his researches and investigations embodied in this work, are well calculated to meet the exigencies of engineers, and to assist draughtsmen, bridge builders, mechanics and students. The work will be supplied to subscribers only, in 12 parts, at 75 cents each.—[N. Y. Journal of Commerce, Feb. 14, 1850.

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ROBBINS, LANGDON & CO.,
133 Water street, corner Pine, New York.

CERTIFICATES.

Providence, March 22d, 1850.

Messrs. Robbins, Langdon & Co.,

Gentlemen: We have given your machine oil a thorough trial, and find that it possesses all the qualities that we could wish, as it works better than any sperm oil we have ever used. Our shafts that required oiling four times a day with the best sperm oil that we could get, work equally as well by the application of your oil twice a day, and your oil stands cold weather much better than any oil we have ever used. Our engineer having had years' experience in running and making engines, we put great confidence in his judgment, and he gives it as his opinion that your oil is fully equal to if not better than any he ever used; and we shall soon give you an order for more, as we do not want any other kind of oil as long as we can get yours.

Very respectfully yours,
JACKSON, CLARK & CO.

—

Bridgeport, Nov. 7th, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: After about three months' trial of your oil, I have come to the conclusion to use it entirely on the engines on the New York and New Haven and the New Haven and Northampton Railroads for the following reasons:

1. It wears quite as long as sperm oil.
2. So far as I have tried it, it keeps the Journals equally cool as sperm oil.
3. I have no complaint from our men about cleaning the engines, and presume it is equally as easy to clean an engine by using your oil as it is in using sperm oil.
4. I can see no reason why it is not equal to the best of sperm oil for lubricating machinery.
5. There is in my opinion a very great saving to all parties in using your oil for lubricating machinery.
6. I believe it will stand cold weather better than any sperm oil. Very respectfully Yours,

R. B. MASON, Supt. N. Y. & N. H. Railway.

Steamer Bay State, Oct. 22d, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: In answer to your request for my testimony as to the machinery oil manufactured by you, I will say that I have used it for some time past on the Bay State, and am perfectly satisfied that your statement to me of its good qualities, is correct. As far as its lasting properties go, it wears equally long as sperm oil, runs perfectly free, and has no appearance of thickening. As seeing is better than hearing, I would recommend you to send your friends on board our boat, and they can then, by ocular demonstration, judge for themselves. Yours repectfully, JOHN GRAY,
Engineer of Steamer Bay State, Pier 3, N.R.

—

Steamboat Knickerbocker, Sept. 22, 1849.

Gentlemen: Mr. Hall, Agent of the Norwich and New London Steamboat Co., placed in my hands some of your machinery oil, which he desired me to use on the engine and other machinery, which I have done, and was so much pleased with the working, that I recommended the owners to give you their orders.

I have been using the article since August 19, and with perfect satisfaction, and I am well satisfied that your oil is as good as the best of sperm for lubricating machinery. I am yours very respectfully,
SAMUEL CARTER,
Engineer of Steamboat Knickerbocker, Pier 18, N.R.
To Messrs. Robbins, Langdon & Co.,
Oil Merchants, 133 Water street, New York.

—

Steamboat Worcester, N. York, Oct. 15, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: I beg to acknowledge the receipt of your letter requesting my opinion as to your oil for machinery, which I had not time to reply to previous to my return to Norwich. I have been using your oil on the engine and machinery of the Worcester with perfect success, and have much pleasure in testifying as to its good qualities. In my opinion, the journals keep cooler with your oil than with sperm, and it wears equally well. Should you at any time wish to refer to me as to your oil, I beg you will do so without hesitation. Yours respectfully, JAS. CROOKER.
Engineer Steamboat Worcester, Pier 18, N. R.

—

New York, August 3d, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: I received your letter in regard to your oil for machinery, which I handed to our engineer, and have much pleasure in sending you an extract from his letter to me on the subject: "I have applied the oil sent me upon our hot journals and cylinders, and find that they keep cooler with it than with sperm oil. I cannot find any fault with the oil, although I have watched it carefully. I have also tried it against an equal quantity of sperm oil, and find it wears quite as well." You are quite at liberty to show this extract to your friends, and shall be happy to give any further certificate you may require. WM. RIDER,
Treasurer Union India-rubber Co., 19 Nassau st. N.Y.

—

New York, March 22d, 1850.

Messrs. Robbins, Langdon & Co.,

Gentlemen: I have been using your machinery oil on the engine and other machinery of the Steamer Southerner running from this to Charleston, and find it equal to sperm oil. I shall continue the use of the same, and you are at liberty to refer to me at any time.
Yours respectfully, DAVID N. MAXON,
Chief Engineer Steamer Southerner.

—

Steamboat C. Vanderbilt, N. York, Oct. 11, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: In reply to your inquiries respecting the qualities of your machinery oil, I am happy to inform you that I have been using the article sent me for some time past, not only on the engine but on all other machinery connected with it: and from a careful and close examination, I am well satisfied that your oil is as good as the best of sperm oil for lubricating machinery. I have recommended Mr. Lockwood the agent of the company, to give you their orders.
Yours respectfully, JAMES BAKER,
Engineer Steamboat C. Vanderbilt, Pier 3, N.R.

—

Brooklyn, August 29, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: Your letter of the 29th was received, and I am happy to inform you that I have used your machinery oil throughout my establishment, and I am still of the opinion that it is as good as the best of sperm oil for lubricating machinery. I should be pleased at any time to have your friends witness the working, and I am sure, after once doing so, will give you their orders. Please send me another cask by the evening of the 3d, and by so doing you will much oblige,
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This book has been compiled somewhat on the plan of Bradshaw's Guide, with such improvements in size, form and arrangement as have seemed desirable; and the publisher confidently hopes it will not be found liable to the objections of incompleteness and incorrectness, which have been made, and justly too, against various other similar works heretofore issued.

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February 9, 1850. 6m*

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S. C. H.'s arrangements with several machine shops are such that he can supply, at very short notice, large quantities of machinery.

November 23, 1849.

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3,000 TONS C. L. MAKE 63½ lbs. per yard, now landing and to arrive.

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300 Tons Banks Best Iron, Round, Square and Flat.
200 " English Bar " " " "
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SPRING STEEL FOR LOCOMOTIVES, TENDERS AND CARS.—The subscriber is engaged in manufacturing spring steel from 1¼ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address J. F. WINSLOW, *Agent*,
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Railroad Iron.

THE Undersigned, Agents for Manufacturers, are prepared to contract to deliver Rails of superior quality, and of any size or pattern, to any ports of discharge in the United States.
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New York, November 17, 1849.

Railroad Iron.

1,500 Tons weighing 58 lbs. per lineal yard.
500 " " 57 " "
500 " " 56 " "
500 " " 60 & 61 lbs, "

Also 2½x½ flat rails. All the above being of approved patterns. For sale by
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158 South St.
New York, November 17, 1849. 1m46

Railroad Iron.

1675 Tons, weighing about 61 lbs. per yard, 90 tons, weighing about 52 lbs. per yard, and 825 tons, weighing about 53½ lbs. per yard, of the latest and most approved patterns of T rail, for sale by
BOORMAN, JOHNSTON & CO.,
119 Greenwich street.
New York, Feb. 25, 1850.

N.B.—B., J. & Co are also prepared to take contracts for English rails, delivered in any of the Atlantic ports of the Unitad States.

Railroad Iron.

THE UNDERSIGNED, HAVING made arrangements abroad, are prepared to contract for the delivery of Foreign rails, of approved brands upon the most favorable terms.

They will also make contracts for American rails, made at their Trenton works, from Andover Iron, in whole or in part, as may be agreed upon.

They are prepared to furnish Telegraph, Spring and Market Wire; Braziers and Wire Rods; Rivets and Merchant Bars to order, all made exclusively from Andover Iron. The attention of parties who require iron of the *very best* quality for special purposes, is respectfully invited. COOPER & HEWITT,
17 Burling Slip, New York.
February 15, 1850.

Glendon Refined Iron.

Round Iron, Band Iron, Hoop Iron,
Square " Flat " Scroll "
Axles, Locomotive Tyres,

Manufactured at the Glendon Mills, East Boston, for sale by GEORGE GARDNER & CO.,
5 Liberty Square, Boston, Mass.
Sept. 15, 1849. 3m37

PATENT HAMMERED RAILROAD, SHIP & BOAT SPIKES.—The Albany Iron Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for rail roads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscribers at the works will be promptly executed.
JOHN F. WINSLOW, *Agent*.
Albany Iron and Nail Works, Troy, N. Y.

The above Spikes may be had at factory prices, of Erastus Corning & Co Albany; Merritt & Co., New York; E. Pratt & Brother, Baltimore Md

LAP—WELDED WROUGHT IRON TUBES

FOR

TUBULAR BOILERS,

FROM ONE AND A QUARTER TO SEVEN INCHES IN DIAMETER.

THE ONLY Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.
THOMAS PROSSER & SON, Patentees,
28 Platt street, New York.

Railroad Iron.

THE UNDERSIGNED ARE PREPARED TO contract for the delivery of English Railroad Iron of favorite brands, during the Spring. They also receive orders for the importation of Pig, Bar, Sheet, etc. Iron. THOMAS B. SANDS & CO.,
22 South William street,
February 3, 1849. New York.

Iron Store.

THE Subscribers, having the selling agency of the following named Rolling Mills, viz: Norristown, Rough and Ready, Kensington, Triadelphia, Pottsgrove and Thorndale, can supply Railroad Companies, Merchants and others, at the wholesale mill prices for bars of all sizes, sheets cut to order as large as 58 in. diameter; Railroad Iron, domestic and foreign; Locomotive tire welded to given size; Chairs and Spikes; Iron for shafting, locomotive and general machinery purposes; Cast, Shear, Blister and Spring Steel; Boiler rivets; Copper; Pig iron, etc., etc.
MORRIS, JONES & CO.,
Iron Merchants,
Schuylkill 7th and Market Sts., Philadelphia.
August 16, 1849. 1y33

Railroad Iron.

THE MOUNT SAVAGE IRON WORKS, Alleghany county, Maryland, having recently passed into the hands of new proprietors, are now prepared, with increased facilities, to execute orders for any of the various patterns of Railroad Iron. Communications addressed to either of the subscribers will have prompt attention. J. F. WINSLOW, *President*
Troy, N.Y.
ERASTUS CORNING, Albany
WARREN DELANO, Jr., N.Y.
JOHN M. FORBES, Boston.
ENOCH PRATT, Baltimore, Md.
November 6, 1848.

Railroad Iron.

THE SUBSCRIBERS ARE PREPARED TO take orders for Railroad Iron to be made at their Phœnix Iron Works, situated on the Schuylkill River, near this city, and at their Safe Harbor Iron Works, situated in Lancaster County, on the Susquehannah river; which two establishments are now turning out upwards of 1800 tons of finished rails per month.

Companies desirous of contracting will be promptly supplied with rails of any required pattern, and of the very best quality.
REEVES, BUCK & CO.,
45 North Water St., Philadelphia.
March 15, 1849.

Monument Foundry.

A. & W. DENMEAD & SON,
Corner of North and Monument Sts.,—Baltimore,
HAVING THEIR
IRON FOUNDRY AND MACHINE SHOP
In complete operation, are prepared to execute faithfully and promptly, orders for
Locomotive or Stationary Steam Engines,
Woolen, Cotton, Flour, Rice, Sugar Grist, or Saw Mills,
Slide, Hand or Chuck Lathes,
Machinery for cutting all kinds of Gearing.
Hydraulic, Tobacco and other Presses,
Car and Locomotive patent Ring Wheels, warranted,
Bridge and Mill Castings of every description,
Gas and Water Pipes of all sizes, warranted,
Railroad Wheels with best faggotted axle, furnished and fitted up for use, complete

☞Being provided with Heavy Lathes for Boring and Turning Screws, Cylinders, etc., we can furnish them of any pitch, length or pattern.

☞ Old Machinery Renewed or Repaired—and Estimates for Work in any part of the United States furnished at short notice.

June 8, 1849.

Iron Wire.

REFINED IRON WIRE OF ALL KINDS, Card, Reed, Cotton-flyer, Annealed, Broom, Buckle, and Spring Wire. Also all kinds of Round, Flat or Oval Wire, best adapted to various machine purposes, annealed and tempered, straightened and cut any length, manufactured and sold by

ICHABOD WASHBURN.

Worcester, Mass., May 25, 1849.

American and Foreign Iron.

FOR SALE,

300 Tons	A 1,	Iron Dale Foundry Iron.
100 "	1, " " "	
100 "	2, " " "	
100 "	" Forge "	
400 "	Wilkesbarre " "	
100 "	"Roaring Run" Foundry Iron.	
300 "	Fort " "	
50 "	Catoctin " "	
250 "	Chikiswalungo " "	
50 "	"Columbia" "chilling" iron, a very superior article for car wheels.	
75 "	"Columbia" refined boiler blooms.	
30 "	1 x ¼ Slit iron.	
50 "	Best Penna. boiler iron.	
50 "	"Puddled" "	
50 "	Bagnall & Sons refined bar iron.	
50 "	Common bar iron.	

Locomotive and other boiler iron furnished to order.

GOODHUE & CO.,
New York. 64 South street

American Pig, Bloom and Boiler Iron.

HENRY THOMPSON & SON,
No 57 South Gay St., Baltimore, Md.,

Offer for sale. *Hot Blast* Charcoal *Pig Iron* made at the *Catoctin* (Maryland), and *Taylor* (Virginia), *Furnaces; Cold Blas.* Charcoal Pig Iron from the *Cloverdale* and *Catawba*, Va., Furnaces, suitable for *Wheels* or *Machinery* requiring *extra* strength; also *Boiler* and *Flue Iron* from the mills of Edge & Hilles in Delaware, and *best quality Boiler Blooms* made from *Cold Blast Pig Iron* at the *Shenandoah Works*, Va. The productions of the above establishments can always be had at the lowest market prices for approved paper.

American Pig Iron of other brands, and *Rolled* and *Hammered Bar Iron* furnished at lowest prices. Agents for *Watson's Perth Amboy Fire Bricks*, and Rich & Cos. New York Salamander Iron Chests.

Baltimore, June 14, 1849. 6 mos

Wheel, Forge and Foundry Iron.

LOCUST GROVE Wheel Iron of great strength and superior chilling property.

Balt. Charcoal Forge Iron, from Patuxent, Curtis Creek and Gunpowder furnaces.

Elkridge Foundry Iron, of superior strength and softness. Anthracite and Charcoal Iron from Pennsylvania and Virginia. Gas and Water Pipes, Lamp Posts from Elkridge furnace.

LEMMON & GLENN,
6m9 62 Buchanan's Wharf, Baltimore.

Iron.

THE SUBSCRIBERS having resumed the agency of the New-Jersey Iron Company, are prepared to execute orders for the different kinds and sizes of Iron usually made at the works of the company, and offer for sale on advantageous terms.—

150 tons	No. 1 Boonton Foundry Pig Iron.		
100 "	No. 2	do.	do.
300 "	Nos. 2 & 3 Forge	do.	do.
100 "	No. 2 Glendon	do.	do.
140 "	Nos. 2 & 3 Lehigh Crane	do	do.
100 "	No. 1 Pompton Charcoal	do.	
100 "	New-Jersey Blooms		
50 "	New-Jersey Faggoting Iron, for shafts		

Best Bars, ¾ to 4 inch by ¾ to 1 inch thick.
Do do Rounds and Squares, ¾ to 3 inch.
Rounds and Squares, 3-16 to 1 inch.
Half Rounds, ¾ to 1 in. Ovals & Half Ovals ¾ to 1¼ in.
Bands, 1¼ to 4 inch. Hoops, ¾ to 2 inch.
Trunk Hoops, ¾ to 1¼ in. Horse Shoe & Nut Iron.
Nail Plates. Railroad Spikes.

DUDLEY B. FULLER & Co., 139 Greenwich-st. and 85 Broad-st.

WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving from their manufactory,
PARK WORKS, SHEFFIELD,
Double Refined Cast Steel—square, flat and octagon.
Best warranted Cast Steel—square, flat and octagon.
Best double and single Shear Steel—warranted.
Machinery Steel—round.
Best and 2d gy. Sheet Steel—for saws and other purposes.
German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.
Genuine "Sykes," L Blister Steel.
Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms by WM. JESSOP & SONS,
91 John street, New York.
Also by their Agents—
Curtus & Hand, 47 Commerce street, Philadelphia.
Alex'r Fullerton & Co., 119 Milk street, Boston.
Stickney & Beatty, South Charles street, Baltimore.
May 6, 1848.

JOHNSON, CAMMELL & Co's Celebrated Cast Steel,

AND
ENGINEERING AND MACHINE FILES,

which for quality and adaptation to mechanical uses, have been proved superior to any in the United States. Every description of square, octagon, flat and round cast steel, sheet, shovel and railway spring steel, best double and single shear steel, German steel, flat and square, goat stamps, etc. Saw and file steel, and steel to order for any purposes, manufactured at their Cyclops Steel Works Sheffield.

JOHNSON, CAMMELL & CO.,
100 William St., New York.
November 23 1849.

Railroad Iron.

OF ANY PATTERN AND WEIGHT,
Of a Favorite Brand,
And delivcrable in Bond, or Duty paid, at any Port of the U. S., contracted for on favorable terms, by

CHARLES ILLIUS,
20 Beaver St., New York.

Pig and other Iron also contracted for. Sole Agent for "*Baxter's Machine and Burning Oil*"—particularly adapted for "*Railroads*" and other Machinery—Preferred to Sperm by the many now using it, and 25 *per cent. cheaper.*

CUT NAILS OF BEST QUALITY, BAR IRON (including Flat Rails) manufactured and for sale by FISHER, MORGAN & CO.,
75 N. Water St., Philadelphia.

Ogden & Martin's ROSENDALE CEMENT.

WE are prepared to enter into arrangements for supplying our Cement for public works or other purposes. We warrant the cement equal in every respect to any manufactured in this country. It attains a great degree of hardness, setts immediately under water, and is a superior article for masonry coming in contact with water, or requiring great strength.

For sale in tight barrels, well papered, at their office by OGDEN & MARTIN, 104 Wall st.
February 16, 1850. 1y*

The above cement is used in most of the fortifications building by government.

To Steam Engine Builders.

THE Undersigned offer for sale, *at less than half its cost*, the following *new machinery*, calculated for an engine of 62 inches cylinder and 10 feet stroke, viz.

2 Wrought Iron Cranks, 60 inches from centre to centre.
1 Do. do. Connecting Rod Strap.
2 Do. do. Crank Pins.
1 Eccentric Strap.
1 Diagonal Link with Brasses.
1 Cast Iron Lever Beam (forked).

The above machinery was made at the West Point Foundry for the U. S. Steamer Missouri, without regard to expense, is all finished complete for putting together, and has never been used. Drawings of the cranks can be seen on application to

HENRY THOMPSON & SON,
No. 57 South Gay St., Baltimore, Md.
Sept. 12, 1849.

P. H. Griffin,

Corner of Steuben and James Sts. Albany, N.Y.,

CONTINUES to manufaeture copper flues for locomotive boilers, brewers' coppers, stills, tanner heaters, etc. Copper work in general, at the shortest notice. He has constantly on hand brass cocks, brass valves, copper pumps of every variety.

Orders promptly attended to. 1y14

To Railroad Companies.

FOR SALE—A Second-hand Locomotive Engine and Tender, of about 10 tons weight, in good order, and *warranted to perform well.* Any company wanting a cheap engine for a passenger or light burden train, will rarely meet with an opportunity so favorable as the present. The engine and tender are in perfect running order, and will be tested to the satisfaction of any one wishing to purchase. Price $1,500.

Address J. B. MOORHEAD,
Frazer P.O., Chester county, Pa.

P.S.—The Engine can be seen by calling on H. Osmond & Co., Car-builders, Broad st., Philadelphia.
September 6, 1849.

India-rubber for Railroad Cos.

RUBBER SPRINGS—*Bearing and Buffer—Fuller's Patent—Hose* from 1 to 12 inches diameter. Suction Hose. *Steam Packing*—from 1-16 to 2 in. thick. *Rubber and Gutta Percha Bands.* These articles are all warranted to give satisfaction, made under Tyer & Helm's patent, issued January, 1849.—No lead used in the composition. Will stand much higher heat than that called "Goodyear's," and is in all respects better than any in use. Proprietors of railroads do not be overcharged by pretenders.

HORACE H. DAY,
Warehouse 23 Courtlandt street.
New York, May 21, 1849.

To Railroad Companies and Contractors.

FOR SALE.—Two Locomotive Engines and Tenders, at present in use on the Beaver Meadow Railroad, being too light for their coal trains, but well calculated for either gravel or light passenger trains.

They weigh, in running order, about 8 tons each—having one pair of driving wheels 4 feet diameter, 4 truck wheels 30 inches diameter, with cylinders 10 in. diameter, and 18 inches stroke of piston. Tenders on 4 wheels. Address JAMES ROWLAND,
Prest. Beaver Meadow Railroad & Coal Co.,
Philadelphia.
or, L. CHAMBERLAIN, Sec'y,
at Beaver Meadow, Pa.
May 19, 1849. 20tf

Rosendale Cement.

THE NEWARK AND ROSENDALE LIME AND CEMENT CO. are now manufacturing at their works in NEWARK, N. J., and Ulster county, N.Y., a very superior article of *Hydraulic Cement*—also Lime Calcine Plaster, etc. Contractors and dealers will find it to their advantage to call or make application before purchasing elsewhere. All communications addressed to the subscriber, at Newark, N.J., will be punctually attended to.

1y*15 HENRY WILDE, Secretary.

NORRIS' LOCOMOTIVE WORKS,
SCHENECTADY, N. Y.

THESE Works are in full operation in Manufacturing to order, Locomotive Steam Engines & Tenders, of the best principle and construction of material, using wrought iron heavy frames with pedestals welded thereto, and all parts of the engine made of the best wrought iron, except cylinders, pumps and boxes—obtaining greater durability, and carrying less weight over the road, than engines constructed of cast iron.

Wrought Iron Tires made any required size, and Tire Bars bent and welded with dispatch.

Chilled Wheels for Cars, Tucks and Tenders, made from the toughest iron.

Driving and Tender and Car Wheels fitted to Axles with Brass Boxes and Springs, and Railroad Machinery generally. Manufactured and for sale by

April 11, 1849. E. S. NORRIS.

To the Proprietors of Rolling Mills and Iron Works.

THE Undersigned—Proprietors of Townsend's Furnace and Machine Shop, Albany—are extensively engaged in the manufacture of Machinery and fixtures for Iron, and Copper Rolling Mills, and Iron Works. Having paid particular attention to the manufacture of *Rolls* (Rollers), both *chilled* and *dry-sand*, they feel confident that they can execute orders for such castings in a satisfactory manner. And to give assurance of this, they beg leave to refer to the following named persons, proprietors and managers of some of the most extensive rolling mills in the country, viz: Jno. F. Winslow, J. Tuckerman, H. Burden, W. Burtt, J. & J. Rogers, Saltus & Co., J. B. Bailey, L. G. B. Cannon, Hawkins & Atwater, etc., etc.

F. & T. TOWNSEND.

Albany, August 18, 1849.

Passenger Car Linings.

THE Advertiser continues to make to order the Enamelled Car Linings which have been so highly approved the last three years, and are now exclusively used by all the Northern Railroads. No pains are spared to get out new styles, and adapt them to the tastes of every consumer.

Orders addressed to CHARLES STODDER, No. 75 Kilby street, Boston, will have prompt attention.

March 23, 1850. 2m

CAUTION.

RAILROAD COMPANIES and others are hereby cautioned against using or vending our improvement for easing the lateral motion as applied on Railroad Cars. Letters Patent having been granted to us in 1841, any party or parties so making or using said improvement without license from us will be proceeded against according to law.

DAVENPORT & BRIDGES.

FOWLER M. RAY'S Patent India-rubber Railroad CAR SPRING.

New York and Erie Railroad Shops.
Piermont, March 26, 1850.

This will certify that from practical experience in the use of Fowler M. Ray's India rubber Car Springs, I believe them to be far superior to any others now in use.

I have never known them to be affected by any change of temperature, as other Rubber Springs have been affected on this road.

I am at the present time repairing a Passenger Car that Mr. Ray and myself mounted with his springs about two years and eight months since.

The springs are at the present time as perfect, to all appearances, as when first applied to the car.

Respectfully yours,
HORACE B. GARDNER,
Foreman of the Car Shops.

—

Supt. Office N.Y. & H. R.R.,
New York, March 8, 1850.

This is to certify that we have used the Rubber Springs manufactured by Mr. F. M. Ray for the past twenty months, "both for Passenger and Freight Car Springs and Bumpers, and of different sizes," and have in every case given entire satisfaction, and I consider them the best spring now in use

M. SLOAT, Supt.

—

Harlem R.R. Depot,
New York, March 7, 1850.

This is to certify that we have used Mr. F. M. Ray's India-rubber Springs for over eighteen months, and find them to be easy and durable, and recommend them to railroad companies as being superior to anything we have tried.

J. M. SMART,
Foreman at 42d St. Depot.

Office New Jersey Railroad Co.,
Jersey City, March 8, 1850.

FOWLER M. RAY, Esq.,

Dear Sir: In answer to your enquiries respecting the operation of the Vulcanised Rubber Springs, purchased by our company from you some two years since, I reply that they are superior to any spring in use, (that I have either seen or heard of).

The improved form of your spring, consisting of a solid piece of vulcanised rubber with bands on the outside, is far superior to your first form, consisting of disks of rubber with metallic plates interposed.

The last named form was tried, if you recollect, at a much earlier period; and then was replaced by your last form.

I have no hesitation in saying that your springs have given entire satisfaction, and most cheerfully recommend them to railroad companies throughout the country for the following reasons:

1st. The cost is 30 per cent. less.

2d. Saving of weight on each car of 8 wheels from 700 to 800 lbs.

3d. Less care and attention is required, as they are not liable to get out of repair.

4th. A great saving is secured in the wear and tear of the cars and rails from their great elasticity.

5th. The freedom from noise.

6th. There is greater safety in case of accident, as they cannot be broken.

7th. The comfort of passengers is enhanced sufficiently to pay the expense, waiving all the other reasons that I have given.

Should this fail to satisfy any person enquiring, you are at liberty to refer to me, No. 150 Washington St., Jersey City. Yours respectfully,

T. L. SMITH, Supt.

—

New York, March 11, 1850.

I have used the Patent India-rubber Spring purchased of Mr. Ray, upon the cars of the New York and New Haven Railroad, and have found them efficient and economical; and when applied to the axles and draw springs, believe them to be quite equal to any in use. I have found a combination of these springs with a steel spring under the transom beam a very satisfactory arrangement, and am now using this plan in all new cars. Yours respectfully,

ROBERT SCHUYLER.

—

February 25, 1850.

From practical observation of the use of the India-rubber Car Springs, manufactured and sold by your company, we are entirely satisfied in their application, and do not hesitate to recommend them as elastic, durable, requiring no repairs for years, and retaining their consistency during all extremes of weather. We have applied them for the past two years, and consider them superior for all railroad purposes.

Yours truly,
OSGOOD BRADLEY, Car Builder, Worcester.
T. & C. WASON, do. Springfield.
DEAN, PACKARD & MILLS, do. do.
DAVENPORT & BRIDGES, do. Cambridgeport.

—

Office of the New Jersey Railroad Co.,
Jersey City, March 7, 1850.

This is to certify that we have had Mr. F. M. Ray's India-rubber Springs in constant use under our cars, and as Bumper Springs for upwards of two years, and they have in every way given perfect satisfaction.

The present form of spring we deem far superior to the form of Disk, having used both forms, although we have none of those made in Disks at present in use.

We take pleasure in recommending these springs to all railroad companies.

J. P. JACKSON, Vice Prest.
New Jersey Railroad and Trans. Co.

—

Roxbury, February 28, 1850.

In compliance with your request, I take great pleasure in stating the result of my experience in the use of "Ray's Patented Vulcanised India-rubber Car and Engine Springs." We have used them nearly two years, and never had one fail in any way. The *cold weather* does not affect *them*, as it has *other* rubber springs we have used.

With sixteen years' experience as superintendent of machinery on the Boston and Providence railroad, I take pleasure in saying that your springs are the best we ever used, or I ever saw used elsewhere. We have 20 cars rigged with them, of which I can say that the springs are as good now as when first applied. I put 24 lbs. of the rubber under the forward end of one of our heaviest engines, taking off 250 lbs. of steel springs—it has been in use 18 months, and is in as good condition now as when first put under the engine.

Very respectfully yours,
GEO. S. GRIGGS,
Supt. of Machinery, Boston and Prov. R.R.

Fall River, February 2, 1850.

In answer to yours of the 20th ult. I would say that this company has for some 10 or 12 months past been using "Ray's India-rubber Springs." We have applied them to both passenger and freight cars with uniform success. They have invariably preserved their elasticity and consistency through all the extremes of weather; and we are now applying them whenever the steel spring fails. I am well satisfied that they are particularly adapted for railroad purposes.

Very respectfully yours,
GEO. HAVEN,
Supt. Fall River Railroad.

—

Jersey City, March 9, 1850.

This is to certify that the present form of Mr. F. M. Ray's India-rubber Car Spring I consider far superior to the form of Disk, having used both forms.

I take pleasure in recommending these springs to all railroad companies. DAVID H. BAKER,
Foreman of Car Shop of N.J. R.R. & Trans. Co.

—

Boston, March 5, 1850.

In answer to your enquiry about India-rubber Springs, I have to say that we have used them to a considerable extent on both freight and passenger cars, and also on several of our tenders; and I am very well satisfied that they answer all the purposes for which they are intended. I believe the India-rubber will soon supersede all other springs for cars and tenders. Yours truly, S. M. FELTON,
Supt. Fitchburg Railroad.

—

Old Colony Railroad Office,
Boston, March 6, 1850.

EDWARD CRANE, Esq.,
President New England Car Co.,

Dear Sir: In compliance with your request I would state that the Old Colony Railroad Comp'y have had in use upon their road, India-rubber Springs furnished by your company, for more than eighteen months past, during which time they have been extensively used under Passenger and Freight Cars, Locomotive Tenders, and for Drawer and Buffiing Springs, with the most perfect success. The elasticity and consistency of the Rubber has never been unfavorably affected by either extremes of heat or cold—and from the experience which we have had in the use of Rubber Springs, I think them well adapted for railroad purposes—and therefore we have for some months past used Rubber almost exclusively, in all places where springs are required.

Respectfully yours, etc.,
JAS. H. MOORE,
Supt. O. C. Road.

—

Troy, February 27, 1850.

We have been using your India-rubber Car Springs for nearly two years—and we take pleasure in saying that in our opinion the rubber has to a certain extent already, and may eventually entirely supersede all other Springs for Railroad Car purposes. We now use it entirely for Draw Springs and Bumpers, considering it better and lighter than steel.

During our two years' experience in the use of it, we have not known any to lose their elasticity, or fail in any way; and we cheerfully recommend the rubber for railroad car springs. Very respectfully,

EATON, GILBERT & CO.

To Practical Machinists.

AN excellent opportunity now occurs to a practical Machinist, of WELL ESTABLISHED REPUTATION, and some capital, to engage extensively in the STEAM ENGINE, BOILER AND FOUNDRY BUSINESS.

An establishment is now ready for business, ample in all its details, including extensive wharf room, for any sized steamboats, and from its position, if properly conducted, will doubtless command a large share of business.

A practical Machinist, as a partner is required, to conduct the whole establishment: and only those FULLY COMPETENT need apply. Address (post paid) "MACHINE CO.," Box No. 741, Philadelphia, Pa.

1m14

Etna Safety Fuse.

THIS superior article for igniting the charge in wet or dry blasting, made with DUPONT'S best powder, is kept for sale at the office and depot of

REYNOLDS & BROTHER,
☞ *Sole Manufacturers,* ☜
No. 85 Liberty St.
NEW YORK.

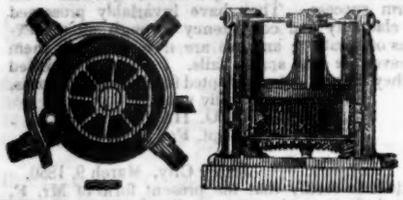
And in the principal cities and towns in the U. States.

☞ The Premium of the AMERICAN INSTITUTE was awarded to the *Etna Safety Fuse* at the late Fair held in this city.

November 3, 1849. 1y

MACHINERY.

Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phœnixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has give universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shingler's, or hammerman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll sounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery *for making Spikes*, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

RAILROAD WHEELS.

CHILLED RAILROAD WHEELS.—THE UNdersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

CHILLED RAILROAD WHEELS.—THE UNdersigned, the *Original Inventor* of the *Plate Wheel* with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.

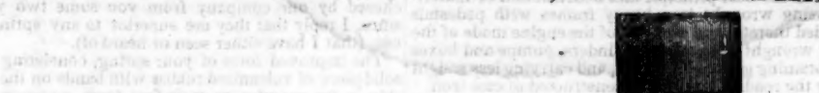
A. TIERS,
Point Pleasant Foundry.

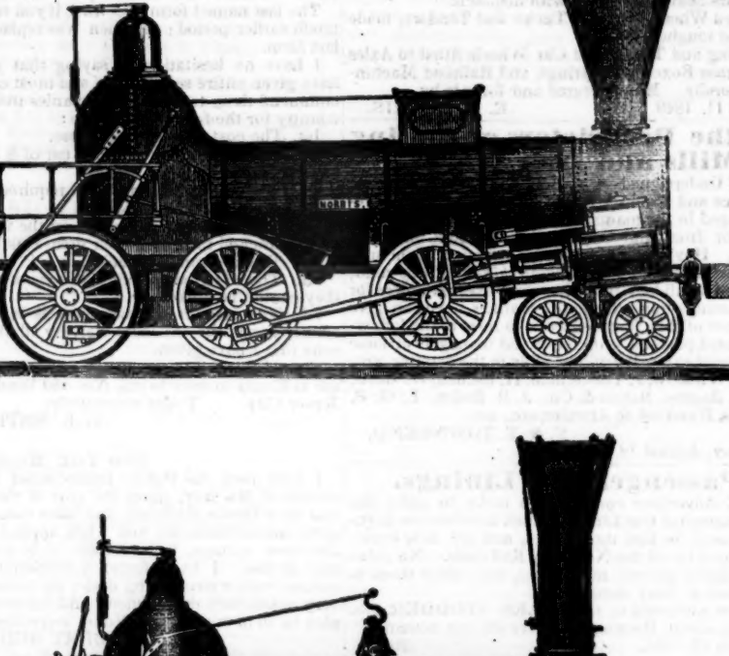
He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country. A. T.

Kensington, Philadelphia Co.,
March 12, 1848.

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,





THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size.

Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tires are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This Cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
142 Front-street, New York.

☞ Orders for the above will be received and promptly attended to at this office. 32 1y.

PATENT MACHINE MADE HORSE-SHOES.

The Troy Iron and Nail Factory have always on hand a general asssortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

COLUMBUS, OHIO,

Railroad Car Manufactory.

RIDGWAYS & KIMBALL,

HAVE established at this central point, the manufacture of Passenger, Freight, Gravel and Hand Cars for Railroads, and assure all Western Railroad Companies that it will be their constant aim to procure the best materials and workmen, and to turn out the best kind of work at fair prices. Specimens may be seen on the Columbus and Xenia Railroad. The patronage of Railroad Companies is respectfully solicited. 1y8

To Inventors and Patentees.

OWEN G WARREN, ARCHITECT, Has had many years' experience as Agent for obtaining Patents, both in this country and Europe, and will transact such business promptly and reasonably. Persons at a distance can have their business done by correspondence—without the necessity of visiting this city or Washington. Office No. 94 Merchants Exchange, Wall st., corner of Hanover st., up stairs. 1y3

MR. HALE:—"The New England Car Co., having been engaged for the last six months in introducing the Vulcanized India-rubber Car Spaings upon the different railroads in this and other states, and having in particular introduced it upon the Boston and Worcester railroad with perfect success, were much gratified to find, by your paper of this morning, that the article had given satisfaction to the president of that corporation, and the terms of just commendation in which you were pleased to speak of it. But their gratification was scarcely equalled by their surprise, when, or arriving at the close of your paragraph, they found the results of all their labors attributed to a foreign source, with which the New England Car Co. has no connection. The material used on the Boston and Worcester railroad, and all the other railroads in this country, where any preparation of India-rubber has been successfully applied, is entirely an American invention, patented in the year 1844 to Charles Goodyear, of New Haven, Conn., and the application of it to this purpose and the form in which it is applied are the invention of F. M. Ray of New York. The only material now in use, and so far as has yet appeared, the only preparation of India rubber capable of answering the purpose, has been furnished under these patents by the New England Car Company, manufactured under the immediate inspection of their own agent. If any other should be produced, the right to use it would depend upon the question of its interference with Mr. Goodyear's patent. The New England Car Company have their place of business in this city at No. 99 State street, and are prepared to answer all orders for the Vulcanised India rubber Car Springs, of the same quality and of the same manufacture as those which they have already placed on your road, and most fo the other roads terminating in this city."

And yet Mr. Knevitt is using these experiments made upon the Springs of the Car Company to induce the public to purchase his springs, and is attempting to impose upon them the belief that the springs used were furnished by him! We ask whether such a course is honorable, or entitles his statements to much consideration from the public.

The above Springs are for sale 98 Broadway, New York, and 99 State street, Boston.

EDWARD CRANE Agent, Boston.
F. M. RAY, Agent, New York.

Boston, May 8, 1849.

Ballard's Improved JACK-SCREW.

PATENTED.

THE ADVANTAGES OF THIS Screw for Stone Quarries, Railroads, Steam Boiler Builders, and for other purposes are superior to any other similar machine.

The improvement consists in being able to use either end of the screw, as occasion requires.

It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

Many Railroad Companies and Boiler Makers have them in use—by whom they are highly recommended.

JACK SCREWS,
of various sizes, power and price, constantly on hand at the manufactory.

No. 7 Eldridge Street,
near Division Street.
New York, Jan. 19, 1850.

NICOLL'S PATENT SAFETY SWITCH FOR Railroad Turnouts. This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable.

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridge Port, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, on application to the Subscriber, Inventor and Patentee.

G. A. NICOLLS,
Reading, Pa.

Hydraulic Cement.

KINGSTON LIME AND CEMENT CO.
OFFICE
271 PEARL-ST.
N. Y.

HYDRAULIC CEMENT, OF BEST QUALITY, manufactured at their works, for sale in lots to suit purchasers.

Also, Ground Lime, a superior article for Builders.

ISAAC FRYER, Sec'y.

January 19, 1850. 1y

Engine and Car Works,
PORTLAND, MAINE.

THE PORTLAND COMPANY, Incorporated August 8th, 1846, with a capital of $250,000, have erected their extensive Works upon the deep water of Portland Harbor, and receive and transport, to and from their works direct, to and from vessels of any class.

They now manufacture to order, and deliver upon the Railroads running in each direction from the city, or on shipboard as wanted, Locomotive, Stationary, or Steam Boat Engines; Passenger, Mail, Freight, Earth and Hand Cars; Railway Frogs, Switches, Chairs and Castings; and every other description of Machinery.

HORACE FELTON,
Superintendent.

JAMES C. CHURCHILL,
General Agent and Clerk.

RAILROADS.

EASTERN RAILROAD.

WINTER ARRANGEMENT.

On and after Monday, October 8, 1849, trains leave Boston daily (Sundays excepted);

For Lynn, 7, 8½, 10 a.m., 12½, 2½, 4, 4½, 6½, p.m.
Salem, 7, 8½ 10, a.m., 12½, 2½, 4, 4½, 6½, p.m.
Manchester and Gloucester, 10 a.m., 4 p.m.
Newburyport, 7, a.m., 12½, 2½ 4½, p.m.
Portsmouth, 7, am., 2½, 4½, pm.
Portland, Me., 7, am., 2½, pm.

And for Boston,

From Portland, 8½ am., 4 pm.
Portsmouth, 7, 10½*, am., 6½*, pm.
Newburyport, 7½, 11½*, am., 3½ 7*, pm.
Gloucester, 7½, am., 1½pm.
Manchester, 8 am., 2 pm.,
Lynn, 7½, 8½*, 9½*, 10½ am., 12 55*, 2½* 4½* 8½* pm.
Salem, 7½, 8½*, 9*, 10½ am., 12 40*, 2½* 4½,* 8*, pm.

* *Or on their arrival from the East.*

Freight trains each way daily. Office 17 Merchants' Row, Boston.

Feb. 3. JOHN KINSMAN, Superintendent.

ALBANY AND BUFFALO RAILROADS.—Four Trains daily, Sundays excepted, viz: Leave Albany, 6 a.m., 9 a.m., 2 p.m., 7 p.m. Reach Buffalo, 15 hours, 18 hours, 23 hours, 18 hours. Arrive from Buffalo, 7 p.m., 2½ a.m., 12½ m., 3½ p.m.

Passengers by the *Express Train* reach Buffalo from New York, and New York from Buffalo, in 24 hours. The Isaac Newton and Oregon connect at Albany with this Train. Baggage cars, with careful baggage masters, run through with all the trains.

For Schenectady, Saratoga Springs & Whitehall,

Leave Albany at 7 a.m. and 2 p.m. For Schenectady only at 6, 7 and 9 a.m. and 12½, 2 and 7 p.m. For Erie Canal packets at 7 a.m. and 7 p.m. By Plank Road from Schenectady to Saratoga at all hours by stages, etc.

The *Eastern Trains* leave Albany at 7 a.m. and 3 p.m. The wagons of the company take baggage *free* between railroads and steamboats at Albany.

E. FOSTER, Jr., Sec'y
Albany and Schenectady Railroad Co.
Albany, August, 1849.

BOSTON AND MAINE RAILROAD.

Winter Arrangement, 1850.

Outward Trains from Boston

For Portland at 7 am. and 2½ pm.
For Rochester at 7 am., 2½ pm.
For Great Falls at 7 am., 2½, 3½ pm.
For Haverhill at 7 and 9½ am., 2½, 3½, 5½, pm.
For Lawrence 7, 7½, 9½ am., 12m. 2½, 3½, 4½ 5½, pm.
For Reading 7, 9½ am., 12m. 2½, 3½, 4½, 5½, 7½, 9½ pm.
For Medford 7½, 9½ a.m., 12½, 2½, 5, 6½, 9½ p.m.
The Station in Boston is on Haymarket Square.

CHAS. MINOT, Super't.

January 10, 1850.

NEW YORK AND HARLEM RAILROAD.
NEW ARRANGEMENT.

On and after Wednesday, October 17th, 1849, the Cars will run as follows, (Sundays excepted) until further notice:

Trains will leave the City Hall, New York, for—

Harlem and Morrisania at 6½, 8, 10, 11, 12 am., 2, 3½, 4, 5, 6½ pm.
New Village, at 8½, 10, 12 am., 3½, 5, 6½ pm.
Fordham and Williams' Bridge, at 8½, 10, 12 am., 2½ 3½, 5, 6½ pm.
Hunt's Bridge, Underhill's and Hart's Corners, at 8½, 10 am., 3½, 5 pm.
Tuckahoe and White Plains, at 8½, 10 am., 2½, 3½, 5 pm.
Pleasantville, New Castle, Bedford, Mechanicsville, Purdy's, Croton Falls, and intermediate stations, on signal, 8½ am., 2½, 3½ pm.
Brewster's, Towner's, Patterson, Paulding's, South Dover, Dover Furnace, and Dover Plains, 8½ am., 2½ pm.

NOTICE—Passengers are reminded of the great danger of standing upon the platform of the cars, and hereby notified that the practice is contrary to the rules of the Company, and that they do not admit any responsibility for injury sustained by any passenger upon the platforms, in case of accident.

Returning to New York will leave

Harlem and Morrisiana at 6 08, 7½, 8 37, 9, 10 6, 12 am., 1 43, 3 07, 3½, 5, 5 47 pm.
New Village, at 5 58, 8 27, 9 56 am., 1 33, 2 57, 5 36 pm.
Fordham and William's Bridge at 5½, 8 14, 9 43, 10 57 am., 1 20, 2 44, 5 24 pm.
Hunt's Bridge at 8 04, 9 33 am., 2 34, 5 16 pm. On signal.
Underhill's, at 7 56, 9 23 a.m., 2 26, 5 10 p.m. On signal.
Tuckahoe at 7 53, 9 18, 10 40 am., 2 23, 5 08 pm.
Hart's Corners at 7 38, 9 03 am., 2 08, 4 54 pm.—On signal.
White Plains at 7½, 8 55, 10 20 am., 2, 4 47 pm.
Davis' Brook at 8 40, 10 11 am., On signal. 4 39 pm. On signal.
Unionville, 8 27, 10 11 am. On signal. 4 29 pm.—On signal.
Pleasantville at 8 20, 9 56 am., 4 24 pm.
Champaqua, at 8 10, 9 50 am. On signal. 4 18 pm. On signal.
New Castle, at 7 56, 9 38 am.. 4 07 pm.
Bedford at 7 46, 9 32 am., 4 02 pm.
Mechanicsville at 7 36, 9 22 am., 3 52 pm.
Golden's Bridge, 7 28, 9 17 am. On signal, 3 47 pm. On signal.
Purdy's at 7 20, 9 09 am., 3 39 pm.
Croton Falls, at 7½, 9 04 am.,3 34 pm.
Brewster's, at 8 50 am., 3 20 pm.
Towner's, at 8 35 am., 3 05 pm.
Paterson, at 8 27 am., 2 57 pm.
Paulding's, at 8 17 am., 2 47 pm.
South Dover, 8 02 am., 2 32 pm.
Dover Furnace, 7 55 am., 2 25 pm.
Dover Plains, at 7 45 am., 2 15 pm.

The trains for Harlem and Morrisiana leaving City Hall at 6½, 8, 10, 11, 12, 2, 4 and 6½, returning from Morrisiana and Harlem at 6 08, 7½, 9, 12, 1 43, 3 07, 3½ and 5 o'clock, will land and receive passengers at 27th 42d, 51st, 61st, 79th, 86th, 109th, 115th, 125th and 132d streets.

The Dover Plains train from New York at 2½ pm., returning leaving Dover Plains at 7½ am., will not stop between White Plains and New York, (except at Tuckahoe, Williams' Bridge and Fordham,) unless to leave passengers coming from above Croton Falls.

A car will precede each train ten minutes to take up passengers in the city. The last car will not stop, except at Broome st. and 27th street.

Freight Trains leave New York at 1 o'clock pm.—Returning, leaves Dover Plains at 12 o'clock m.

For Sunday Aarrangements, see hand bills.

M. SLOAT, Sup't.

NEW YORK AND ERIE RAILROAD. CHANGE OF HOURS.

On and after Monday, May 6, 1850, the trains will leave as follows, by steamboat THOMAS POWELL, from the foot of Duane st. daily (Sundays excepted).

Breakfast and supper on board the boat.

WAY AND MAIL TRAIN—At 6½ a.m., stopping at all the stations—arriving a Corning and Jefferson about 10½ p.m., and at Buffalo next morning.

NIGHT TRAIN—at 5 p.m., stopping at all the stations and arriving at Geneva in time to connect with the Express train from Albany, and arrive at Buffalo at 7 p.m., next day.

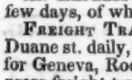
AN EXPRESS TRAIN—Will commence running in a few days, of which due notice will be given.

FREIGHT TRAIN—Leave New York, from foot of Duane st. daily, (Sundays excepted) at 5 p.m. Freight for Geneva, Rochester and Buffalo, forwarded by Express freight train. CHAS. MINOT, Supt.

New York, May 2, 1850.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA TO DALTON, 100 MILES.



This Road, in connection with the South Carolina Railroad, and Western and Atlantic Railroad, now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga. 32 miles from Chattanooga, Tenn.

RATES OF FREIGHT.

		Between Augusta and Dalton. 271 miles.	Between Charleston, and Dalton. 408 miles.
1st class	Boxes of Hats, Bonnets, and Furniture, per cubic foot	$0 18	$0 28
2d class	Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs, and Confectionary, per 100 lbs.	1 00	1 50
3d class	Sugar, Coffee, Liquor, Bagging, Rope, Cotton, Yarns Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow ware, Castings, Crockery, etc.	0 60	0 85
4th class	Flour Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.	0 40	0 65
	Cotton, per 100 lbs.	0 45	0 70
	Molasses per hogshead	8 50	13 50
	" " barrel	2 50	4 25
	Salt per bushel	0 18	
	Salt per Liverpool sack	0 65	
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Company will be forwarded free of commissions. Freights payable at Dalton.

F. C. ARMS,
44*1y Sup't of Transportation.

To Miners and Mining Companies.

THE undersigned would respectfully call the attention of those persons engaged in mineral operations on Lake Superior to the following list of articles which will be sold on accommodating terms, viz:

600 bbls. Corn fed No. 1 Mess Pork.
500 " Stall fed Mess Beef.
25,000 lbs. "Sugar cured canvassed" Hams.
2,200 " Dried Beef.
60,000 " "Kiln dried" Corn Meal,
500 bush. White "Field" Beans.
300 " Canada" Peas.
500 " Dried Apples.
100 bbls. and half bbls. "cucumber" Pickles.
50 " Sour Krout.
30 bush. Onions.
1,000 Beefs' Tongues Smoked and in Pickle.
10,000 lbs. "Mould" Candles.
10,000 " "Hard" Soap.

Also, a full and large supply of all articles that may be required by Mining Companies and those connected with them. C. A. TROWBRIDGE,
127 Jefferson Avenue, Detroit, Michigan.

LITTLE MIAMI RAILROAD.—SUMMER ARRANGEMENT.

CINCINNATI & SANDUSKY.

FIRST Passenger Train leaves Depot on East Front street, at 5 o'clock 10 minutes A. M. stops for breakfast at Morrow, and arrives at Springfield at 11 10 A. M. Leaves Springfield for Sandusky at 11 50 A. M.

Second Passenger Train leaves Depot 3 P. M. arrives at Springfield at 9 P.M. Passengers take tea at Springfield, and leaves for Sandusky at 9½ P. M.

RETURNING—First Train leaves Springfield at 4 A. M. Stop for breakfast at Xenia, and arrives at Cincinnati at 10 15 A. M.

Second Train leaves Springfield at 2½ P. M. Stop for tea at Morrow, and arrives at cincinnati, at 8½ P. M.

Passengers taking the Morning Train arrive at Sandusky at 9 P. M. Those taking the Afternoon Train arrive at 7½ A. M. next morning, and proceed directly on in the boats.

Passengers for columbus, Zanesville, Wheeling, and intermediate towns, should take the 5, 10 A. M., Train.

The Ohi Stage Company are running the following Lines in connection with the Trains:

A Daily Daylight Line to Columbus from Springfield in connection with the Morning Train from Cincinnati. Also, Daily Lines to Columbus, from Xenia and Springfield, connecting with the 3 o'clock, pm. Train from Cincinnati.

Fare from Cincinnati to Xenia			$1 90
Do	do	Springfield	2 50
Do	do	Sandusky City	6 50
Do	do	Buffalo	10 00
Do	do	Columbus	4 50

For other information and through tickets, apply at the Ticket Office on Broadway, near Front-st., Cincinnati.

W. H. CLEMENT, Superintendent.

☞ The Company will not be responsible for Baggage exceeding 50 dollars in value, unless the same is returned to the Conductors or Agent, and freight paid at the rate of a passage for every 500 dollars in value above that amount.

PHILADELPHIA, WILMINGTON, & BALTIMORE RAILROAD.

Summer Arrangement.
April 1st, 1849.—Fare $3.

Leave Philadelphia 8½ am., and 10 pm.
Leave Baltimore 9 am, and 8 pm.
Sunday—Leave Philadelphia at 10 pm.
" " Baltimore at 8 pm.
Trains stop at way stations.

Charleston, S. C.
Through tickets Philadelphia to Charleston, $20.

Pittsburg and Wheeling.
Through ticket, Philadelphia to Pittsburg, $12.
" " Wheeling, 13.
Through tickets sold at Philadelphia office only.

Wilmington Accommodation.
Leave Philadelphia at 12 m. 4 and 7 pm.
Leave Wilmington at 7½ am., 4½ and 7 pm.

Newcastle Line.
Leave Philadelphia at 2½ pm.—Baltimore at 1½ pm
Fare $3.—Second class, $2.
N.B.—Extra baggage charged for.

I. R TRIMBLE, Gen. Supt.

BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger Trains run daily, except Sundays, as follows:

Leave Baltimore at	9 am. and 3½ pm.
Arrive at	9 am. and 6½ pm.
Leave York at	5 am. and 3 pm.
Arrive at	12½ pm. & 8 pm.
Leave York for Columbia at	1½ pm. & 8 am.
Leave Columbia for York at	8 am. & 2 pm.

Fare:

Fare to York	$1 50
" Wrightsville	2 00
" Columbia	2 12½

Way points in proportion.

PITTSBURG, GETTYSBURG, AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg	$9
Or via Lancaster by railroad	10
Through tickets to Harrisbnrg or Gettysburg	3

In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at 5½ pm.
Returning, leaves Owing's Mills at 7 am.

D. C. H. BORDLEY, Sup't.
31 1y Ticket Office, 63 North st.

PHILADELPHIA & READING RAILROAD.

Passenger Train Arrangement for 1848.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock am.

The Train from Philadelphia arrives at Reading at 12 18 m.

The Train from Pottsville arrives at Reading at 10 43 am.

Fares.	Miles.	No. 1.	No. 2
Between Phila. and Pottsville,	92	$3.50 and	$3.00
" " Reading	58	2.25 and	1.90
" Pottsville "	34	1.40 and	1.20

Five minutes allowed at Reading, and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf.

BALTIMORE AND OHIO RAILROAD AND WASHINGTON BRANCH.

On and after January 1, 1850, Passenger Trains will run as follows:

Leave Baltimore for Ellicott's Mills, Frederick, Harper's Ferry, Martinsburg, Hancock and Cumberland, every morning at 7½ o'clock. This line carries the Great Mail, and connects with Post Coaches at Cumberland, for Wheeling and Pittsburg, over the National Road. Also with the Winchester Trains, at Harper's Ferry. N.B.—Passengers for Pittsburg take the steamers of the Monongahela slack water navigation at *Brownsville*, only 76 miles from Cumberland.

Leave Baltimore for Ellicott's Mills, Frederick and Harper's Ferry, daily, except Sunday, at 4½ p.m.

Leave Baltimore for Washington City, daily, at 6 a.m. and 5 p.m.—daily, except Sunday, at 9 a.m. The early train connects with the Great Southern Line, via Fredericksburg and Richmond, to Charleston.

Leave Cumberland for Baltimore, etc., at 8½ a. m., daily, connecting with the train from Winchester at Harper's Ferry—with the Evening Train to Washington City, at the Relay House—and with the Evening Train to Philadelphia, at Baltimore. Time for arriving at Baltimore, 5½ p.m.

Leave Harper's Ferry for Baltimore, daily, except Sunday, at 7½ a. m—taking in Passengers who leave Frederick at 8½ a.m.

Leave Washington for Baltimore, daily, at 6 a.m. & 5½ p.m., and *daily, except Sunday*, at 9½ a. m. The early train connects at the Relay House with the morning line to Cumberland and the West, and at Baltimore with the day line to Philadelphia and New York.

Through tickets are sold at *Philadelphia and Baltimore* for Pittsburgh and Wheeling, and at *Philadelphia and New York* for Charleston, S. C., at the following

RATES OF FARE.

	To Pittsburg. In winter.	Summer.	Wheeling. Win.	Sum.	Charleston.
From Philadelphia,	$13	$12	$14	$13	$20
" Baltimore,	11	10	12	11	
" New York,					20

Passengers leaving New York not later than the afternoon line via Newark, etc., reach Baltimore in season to take the next morning's lines to the South and West.

Passengers leaving Cumberland in the morning and Washington in the evening lines, reach Baltimore in season to proceed to Philadelphia by the evening train at 8 p. m.—so as to reach New York before noon the next day.

An Emigrant line by burthen cars, leaves Baltimore every morning, except Sundays, at 4 o'clock—connecting with a line of the previous day from N. York—and at Cumberland with a wagon line to Pittsburg or Brownsville and Wheeling. Fare by this line:

From New York to Pittsburg,	$8 00
" Philadelphia "	6 50
" Baltimore "	5 00

By order, J. T. ENGLAND, Agent.

SOUTH CAROLINA RAILROAD.—A PASSENGER Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily $26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic Railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

JOHN KING, Jr., Agent.

LAKE SUPERIOR LINE.
Cleveland and Detroit,
TO
SAULT STE. MARIE, CARP RIVER, COPPER HARBOR, EAGLE RIVER, ISLE ROYAL, ONTONAGON AND LA POINT.

The Proprietors of this line having added largely to their facilities for transportation on this route, will be prepared to ship Goods to any part of Lake Superior during the coming season, and contract for the delivery of Copper Ore to either Boston, New York, or Pittsburg, being connected with the Troy and Western Line, from Detroit to New York, and a Daily line of Canal Boats

FROM CLEVELAND TO PITTSBURG.

Lakes Huron and Erie.

For this portion of the route, the Proprietors are fitting up a large Boat, with a powerful low pressure engine, and a spacious upper cabin, with state rooms, to take the place of the Franklin, which will leave CLEVELAND every *Monday Evening* at 7 o'clock, and DETROIT every *Tuesday Afternoon* at 2 o'clock, going to MACKINAW and the BRUCE MINES, and arriving at SAULT STE. MARIE on Thursday morning. The Franklin will leave Detroit every Friday for Mackinaw and Sault Ste. Marie, via the Bruce Mines. For the transportation of heavy masses of *Copper*, a Propeller will make trips as occasion may require.

Lake Superior.

Mr. McKnight, one of the Proprietors, is constructing a Wharf to the Channel Bank, at the head of the Portage, which will enable them to load their Propellers, NAPOLEON AND INDEPENDENCE, with but 24 hours' detention at Sault Ste. Marie. One of the Propellers will leave every *Friday*, making a trip through the Lake, touching at Carp River, Ontonagon and Isle Royal.

The great expense incurred in building wharves to facilitate business, it is hoped, will entitle the Proprietors of this Line to Patronage. Goods shipped by either G. WILLIAMS & CO., or S. P. BRADY, Agents, Detroit, will be receipted through to their destination on Lake Superior. Letters addressed to S. McKNIGHT, Detroit, or Sault Ste. Marie, will receive attention. Supplies will be purchased and delivered at any point on Lake Superior, on the best possible terms, and all orders filled with articles of as good quality as the market affords.

Canada Line.

To facilitate the forwarding of Goods for the Canada Companies, a connection has been made with PARK & CO., managing owners of the Propeller *Earl Cathcart*, forming a direct line from Montreal to the Bruce Mines and Sault Ste. Marie. Goods sent by this line, care of PARK & CO., Amherstburg, or CHAS. HUNT, Esq., Windsor, will be immediately forwarded, and at prices decidedly to the advantage of parties in Toronto or other Canadian Ports.

S. M'KNIGHT,
J. R. LIVINGSTON,
P. B. BARBEAU.

January, 1850.

AGENTS.

G. Williams & Co., } Detroit.
S. P. Brady, }
P. L. Sternberg & Co., Buffalo.
Charles Hunt, Windsor.
Park & Co., Amherstburg.
W. A. Otis & Co., } Cleveland.
Crawford and Chamberlain, }
Rice, Clapp & CO., New York.
W. M. Gorrie, Toronto.

MACHINE WORKS OF ROGERS KETCHUM & GROSVENOR, *Patterson, N. J.* The undersigned receive orders for the following articles manufactured by them of the most superior description in every particular. Their works being extensive, and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and dispatch.

Railroad Work.—Locomotive Steam Engines and Tenders; Driving and other Locomotive Wheels, Axles Springs and Flange Tires; Car Wheels of Cast Iron a variety of patterns and chills; Car Wheels of Cast Iron with wrought tires; Axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and millwright work generally, hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
Patterson, N.J. or 74 Broadway, New York.

CENTRAL RAILROAD FROM SAVANNAH TO MACON, (Ga.) 190¼ miles.

Passenger Trains leave Savannah and Macon daily at 7 a.m.
Passenger trains arrive daily at Savannah, 6 15 p.m.
" " " " Macon, 6 45 p.m.

This road, in connection with the Macon and Western road from Macon to Atlanta, and the Western and Atlantic road from Atlanta to Dalton, now forms a continuous line of 391¼ miles in length* from Savannah to Dalton, Murray county, Ga. and with the Memphis Branch railroad, and Stages connect with the following places:

Tickets from Savannah to Macon,		$5 75
" " "	Atlanta,	9 50
" " "	Augusta,	6 50
" " "	Columbus,	15 00
" " "	Opelika,†	17 00
" " "	Jacksonville, Ala.,	20 00
" " "	Talladega, } Ala.,	22 00
" " "	Huntsville }	
" " "	Decatur, }	
" " "	Tuscumbia, Ala.,	22 50
" " "	Tuscaloosa, Ala.,	
" " "	Columbus, Miss, }	28 00
" " "	Aberdeen, " }	
" " "	Holly Springs }	
" " "	Nashville, Tenn. }	
" " "	Murphreesboro' }	25 00
" " "	Columbia, do., }	
" " "	Memphis, do.,	30 00

An extra Passenger Train leaves Savannah on Saturdays, after the arrival of the Steam-ships from New York, for Macon, and connects with the Macon and Western railroad; and on Tuesdays, after the arrival of the Macon and Western cars, an extra Passenger Train leaves Macon to connect with the Steam ships for New York.

Stages for Tallahasse and intermediate places connect with the road at Macon, Mondays, Wednesdays, and Fridays, and with Milledgeville at Gordon daily.

Passengers for Montgomery, Mobile and New Orleans take stage for Opelika from Barnesville through Columbus, a distance of 97 miles, or from Griffin thro' West Point, a distance ot 93 miles.

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* The Western and Atlantic railroad will soon be completed between Dalton and Chattanooga, a distance of 423¼ miles from Savannah, of which due notice will be given.

† Head of the West Point and Montgomery railroad, on which the fare to Montgomery is about $2.

RATES OF FREIGHT FOR MERCHANDIZE GENERALLY, FROM SAVANNAH TO MACON.

Measurement Goods.—Boxes of hats, bonnets, furniture, shoes, saddlery, dry-goods, and other measurement goods, per cubic foot - - 13 cents.
Crockery Ware, in crates, boxes or hhds, per cubic foot. - - - - 10 "
Goods by Weight, 1st class.—Boxes of glass, paints, drugs & confectionary, per 100 lbs., 50 "
2d class—Sugar, coffee, rope, butter, cheese, lard, tobacco, leather, hides, copper, sheet and hoop iron, tin, hard and hollow ware, rice, boxes soap and candles, bagging, and other heavy articles not enumerated below, per 100 lbs., - - - - 45 "
3d class—Flour, bacon, liquors, pork, beef, fish, tallow and beeswax, per 100 lbs., 40 "
4th class—Mill-gearing, pig and bar iron, grind and millstones, nails, spikes and coal, 100 lb. 30 "
Barrels of beets, bread, crackers, potatoes, ice, fruit, oysters, onions, and all light bbls, each, 75 "
Oil and molasses per hhd., (smaller casks in proportion) - - - $6 00 "
Salt per sack not exceeding 4 bushels, - 50 "

☞ Goods consigned to Thos. S. Wayne, Forwarding Agent, Savannah, will be forwarded free of commission.

WM. M. WADLEY, Supt.

Savannah, Ga., February 24, 1850.

ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.

No 23 Pear street, near Third, below Walnut, Philadelphia.

GREAT NORTHERN & SOUTHERN MAIL ROUTE. From New York to Charleston, S. C. daily, via *Philadelphia, Baltimore, Washington City, Richmond, Petersburg, Weldon and Wilmington, N. C.*

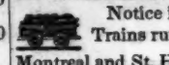
Travellers by this route, leaving New York at 4½ p. m., Philadelphia at 10 p.m., and Baltimore at 6 a.m., proceed without delay at any point on the route, arriving at Richmond, Va., in a day, and at Charleston, S. C., in two and half days from New York.

Through tickets from New York to Charleston, $20 00
" " Baltimore to Richmond, 7 00
" " " " Petersburg, 7 50

For tickets to Richmond and Petersburg, or further information, apply at the *Southern Ticket Office, adjoining the Washington Railroad Ticket Office, Pratt Street, Baltimore* STOCKTON & FALLS.

October, 1849.

ST. LAWRENCE & ATLANTIC RAILROAD COMPANY.



Notice is hereby given that the Trains run twice per day between Montreal and St. Hyacinth, leaving each terminus alternately, until further notice.

Leaving St. Hyacinth at - - 7 am.
" " - - 3 pm.
Leaving Montreal at - - 10 am.
" " - - 6 pm.

THOMAS STEERS, *Secretary.*

May 31, 1849.

WESTERN AND ATLANTIC RAILROAD,
FROM ATLANTA, GA., TO CHATTANOOGA, TENN.
140 Miles.

PASSENGER SCHEDULE.

Leave Chattanooga daily, Sundays excepted, at 8½ a.m.
Arrive at Kingston . . . by 12 m.
" Dalton . . . by 3 p.m.
" Chattanooga . . . by 6 "
Leave Chattanooga daily, Sundays excepted, at 7 a.m.
Arrive at Dalton . . . by 9½ "
" Kingston . . . by 12 m.
" Atlanta . . . by 4 p.m.

The fare is now permanently reduced to *three* cents per mile for way as well as through Passengers; children and servants *two* cents per mile.

There are two Railroad routes from Atlanta to the Seaboard, viz: one by the Georgia Railroad to Augusta, and thence to Charleston by the South Carolina Railroad; the other by the Macon and Western Railroad to Macon, and thence to Savannah by the Central Railroad.

At Kingston, 60 miles north of Atlanta, the Rome Railroad branches off to Rome on the Coosa river, which admits of steamboat navigation as far down as Greensport in Ala. Mail stages are in operation from Rome leading towards Tuscaloosa, Ala., Columbus, Miss., Memphis, Tenn., etc.

At Dalton, 100 miles north of Atlanta, a line of stages branches off to Knoxville, Tenn., which will be superseded by the East Tennessee and Georgia Railroad as rapidly as the same is completed.

At Chattanooga a number of steamboats are in successful operation on the Tennessee river, and from that terminus of the road stages run to Nashville, which will be superseded by the Nashville and Chattanooga Railroad as rapidly as the same is completed.

WM. D. FULLTON, Supt. Transp.
Transportation W. & A. R. R.,
Atlanta, March, 1850.

CAR MANUFACTORY
CINCINNATI, OHIO.

KECK & DAVENPORT WOULD RESPECTfully call the attention of Railroad Companies in the West and South to their establishment at Cincinnati. Their facilities for manufacturing are extensive, and the means of transportation to different points speedy and economical. They are prepared to execute to order, on short notice, Eight-Wheeled Passenger Cars of the most superior description. Open and Covered Freight Cars, Four or Eight-Wheel Crank and Lever Hand Cars, Trucks, Wheels and Axles, and Railroad Work generally.

Cincinnati, Ohio, Oct. 2, 1848. 44tf

FOWLER M. RAY'S
METALLIC INDIA RUBBER CAR SPRINGS.

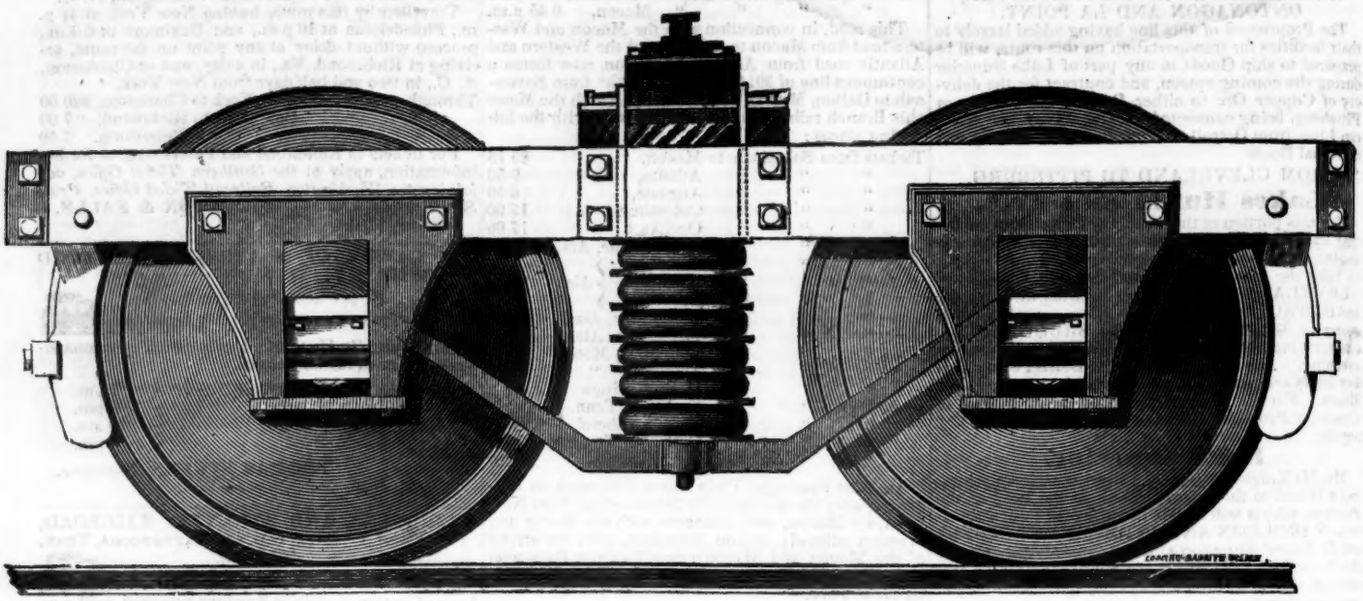


Fig. 1.

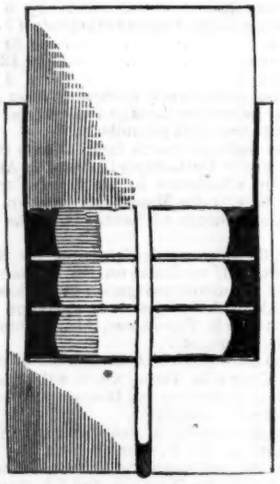


Fig. 2.

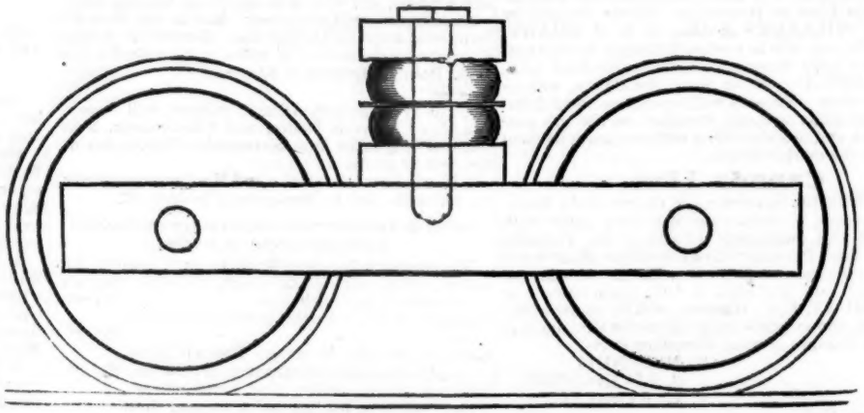
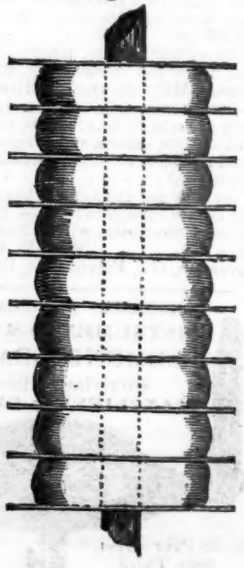


Fig. 3.



So much has been published for the purpose of misleading the public in regard to the inventorship of the India-rubber Railroad Spring, patented in the United States by Mr. W. C. Fuller, that the New England Car Company, proprietors of this invention, have deemed it proper, for the information of Railroad Companies, Car Builders and the public generally, to lay before them the facts upon which they found their claim to this invention, and to a Patent therefor.

Cut No. 1, Represents a cross section of the first model made by Mr. Tucker, under the direction of Mr. Ray, in the summer of 1844, and to which Mr. Tucker, Mr. Bradley and Mr. Bannester testify as being the model marked "B."

Cut No. 2, Represents the model made in 1845, to which Mr. Osgood Bradley and Gen. Thos. W. Harvey have testified.

Cut No. 3, Represents a rough sketch made by Mr. Ray in 1844, which he gave to a man about departing for England to take out some patents, who promised to write to Ray after his arrival in that country—which promise he has probably forgotten.

Mr. W. C. Fuller, of England, patented the above Spring in that country on the 23d October, 1845. He filed his enrollment April 23d, 1846, and on the 22d October, 1846, he took out a patent in the United States under the title, "For Improvement in Railway Carriages," when the improvement consisted in the spring, and not in the carriage.

The reader will perceive by the annexed testimony, that the India-rubber Railroad Car Spring was invented by Mr. Ray about two years previous to the date of Mr. Fuller's enrollment.

The Depositions are omitted for want of room, but will be published in full in the course of a few weeks.

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☞ LETTERS and COMMUNICATIONS to this Journal may be directed to the *Editor*,
HENRY V. POOR,
136 NASSAU STREET.